COSC460
Research Project
Department of Computer Science
University of Canterbury

AN INCIDENT REPORTING AND INFORMATION RETRIEVAL SYSTEM FOR THE FIRE SERVICE.

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INDEX

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1. INTRODUCTION

1.1 Overview

This year the students of COSC203 were involved with Dr R.E.M. Cooper and the Christchurch Fire Brigade in designing and implementing an on-line mobilising system for the Christchurch Fire Brigade. It was envisaged that the data collected and output by this mobilising system as well as data collected from other sources could be assembled into a data base. From this incident data base meaningful statistics could be obtained for a variety of uses.

The research project involved analysing the present incident reporting system, identifying its requirements and current difficulties. If the problems of the present system warranted it, then a new incident reporting approach would have to be designed.

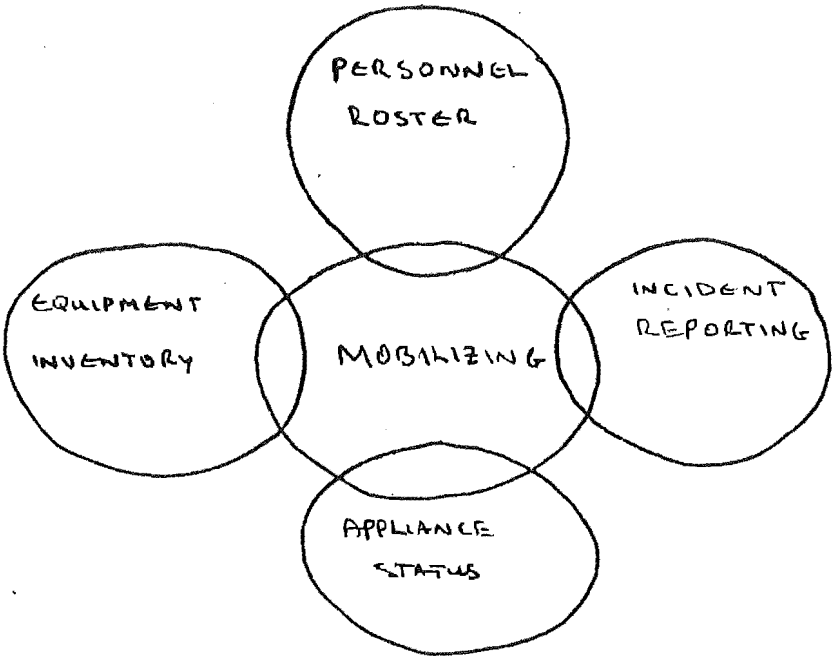
Initially, because the approach was from the local Christchurch Fire Brigade and later on, because of communication difficulties with the Fire Commission (in Wellington), both the mobilising and the incident reporting schemes were discussed and developed in conjunction with the local brigade. Although it was necessary to deal with many different people in the brigade most of the work was done with and most of the liaison done through Station Officer K. Wayman and in conjunction with him, the Deputy Chief Fire Officer G. Roberts.

1.2 Fire Service Subsystems

It is important to identify the various systems that operate in the Fire Service and how they relate to the incident reporting system.

The aim of the Fire Service is to attend calls as quickly and efficiently as possible. Therefore it becomes clear that the mobilising or "turn out" procedure is the central and most important process of the whole system. The present mobilising system is entirely manual, it receives the alarm calls and is responsible for turning out the necessary appliances to the incident. The system has to keep a constant check on the progress of the incident, recording what is happening until the incident is complete.

If we look at the system structure we can see some of the subsystems involved.



In order to be able to turn out to incidents, the mobilising system needs certain information. For example it needs to know what personnel are on duty at any time, and which appliances are available or committed and where they are located. Therefore the mobilising system makes use of information provided by these other subsystems.

On the other hand the incident reporting system is one that collects data after the incident rather than provide information necessary for incident turnout. The incident reporting system gathers data from, among other sources, the mobilising system. It uses this data to complete a full and accurate account of how the incident started, progressed and ended. Incident reporting is the final process that the Fire Service goes through with regard to the incident.

2. THE STRUCTURE OF THE NEW ZEALAND FIRE SERVICE

Until recently, fire brigades used to be administered locally, that is by urban fire authorities. This involved 277 local fire services. Now, however, all fire brigades in the country have been amalgamated into a single national organisation, the New Zealand Fire Service.

The existing 277 fire districts are still the basic local units. These fire districts have been grouped into 22 fire areas (for mainly operational purposes) with each Area headed by an Area Commander. The fire Areas themselves have been grouped into 6 fire Regions (mainly for administrative purposes) and each Region is headed by a Regional Commander.

The administrative head of the Fire Service is the Fire Service Commission in Wellington which controls all the brigades in New Zealand.

3. THE CHRISTCHURCH FIRE SERVICE

The Christchurch Fire Service is designated 5A-01 that is, it is district 1 of Area A in Region 5. The service has eleven stations in this district, made up of both permanent and volunteer brigades.

The service consists of four divisions:

1. The operational division
2. The administrative division
3. The training division
4. The Fire Safety division

The Chief Fire Officer is responsible for the Christchurch Fire Service and has the Deputy Chief Fire Officer and other officers under him. While senior officers (handling mainly administration) work a "normal" day unless there is a major incident, the station's firemen and operation officers are organised into four watches or shifts.

4. INCIDENT REPORTING

4.1 Collection of Incident Data

At present the headquarters brigade handles the incident reporting for all the brigades in its district.

When an incident is attended, the control room operator begins filling out a report on the incident. He can do this as the incident progresses. The data that the control room operator requires is either available in the control room (for example the type of alarm) or it is relayed to him by radio from the appliance. Data is collected on the actual fireground by the attending officer who records details of the incident using the form FSC-3 (Appendix A).

From both the control room working report and the fireground notes, the control room operator completes the Christchurch Fire Service "Christchurch Fire Report"(Appendix B). For most incidents this basic report is all that is necessary, however for some major incidents extra details must be included on Fire Continuation sheets. For example progress messages on the incident, backup appliance movements, adjoining property damage, any injuries or fatalities (Appendix C).

In general the incident report is completed shortly after the actual incident. However in some cases (approximately 4-5 times a week) in order to determine properly the cause of the fire or where a by-law infringement has occured or where the fire is regarded as suspicious, then extra investigation has to be done by the Fire Safety Division before the report can be fully completed.

The Christchurch Fire Report is kept as a record of the districts operations. It is important that this report be an exact and accurate account of the incident as it is sometimes necessary to produce it as a legal document.

The incident data is processed locally both for the districts own information requirements and also to collect data that the Fire Service Commission requires.

4.2 Local Analysis of Incident Data

The statistical analysis of incident data and preparation of reports at the district level is handled by the Fire Safety Division of the brigade.

The reports produced are of two types:

1. A periodic summary of brigade operations, monthly and annual. This type of report consists to a large extent of a statistical breakdown of the month's or year's incidents (Appendix D). For example, what type of calls were received, how they were received, who attended, what was the damage.

At present the gathering and analysis of information necessary for these reports is taking a considerable amount of time and effort. Most of the relevant data is not obtained from the actual incident reports but in fact from various different areas in the brigade. For example information on the number and type of alarms is obtained from the Alarms Officer.

2. The Fire Safety Division also prepares detailed reports on exceptional incidents (either in scale or type). In the case of a large fire, a report might discuss in detail the structure of the property and its fire defenses as well as documenting in detail the methods used and problems encountered in extinguishing the fire.

As well as the two types of report, there is a third area that the Fire Safety Division handles which is directly related to incident reporting. This is the retrieval of specific facts on incidents that are not produced as a matter of course. An example would be the question - how many electric blanket fires have there been this winter and who manufactured those blankets ?

This form of general enquiry is the most difficult of all. This is because the Fire Safety Division has no general data base on past incidents therefore to obtain information of this kind, it is necessary either to look through the monthly or annual reports or search through the actual incident reports themselves.

4.3 Data Collected for the Fire Commission

The data that is processed for the Fire Commission in Wellington is of two types:

1. The routine relaying of local incident reports to the Fire Commission. This report (FSC 2A Appendix E) is an almost exact copy of the Christchurch brigade's usual incident report. These incident reports for the Fire Commission are completed by brigade members and simply involve the transcribing of the local report on to the Fire Commission report.

2. The data that is collected on special incidents which the Fire Commission requires extra details on. This is handled by the local Fire Safety Division. One such report is the Building Research Association of New Zealand (B.R.A.N.Z.) report which is completed for every incident that meets the specifications laid down. That is, for every property fire that involved:

    1. Fatalities

    2. Sprinklers that failed to control the fire

    3. Four or more deliveries (Wellington district only)

4. Six or more deliveries (elsewhere)
5. Spread to second compartment
6. Multi-storey building (greater than 5 storeys)
7. Significant quantities of plastics
8. Any other "interesting" features

5. THE NEW ZEALAND FIRE COMMISSION

5.1 The Incident Data

The Fire Commission is situated in Wellington and its Fire Safety Division handles the incident reporting. Incident reports from all the brigades in the country are gathered there. Currently the system for analysing them is almost entirely manual and is detailed below.

A count of the incident reports received is recorded for each district. This is a check total for balancing purposes. These reports are partially coded in a primitive code. These coded reports are handed over to the State Services Commission computer department where they are processed into machine-readable form and input to the computer. The computer program then generates the annual statistics for the Fire Commission's report to Parliament (Appendix F). The program does not output the statistics in a form that can be directly copied for printing, in fact some manual work is necessary to obtain the correct statistics and present them in an acceptable form

5.2 Information Retrieval

The original incident reports are stored away in a set of boxes arranged to enable easy retrieval of incidents using certain keys such as type of incident or individual brigade. Where an incident may belong to two or more types of file (for example to a normal property fire file and to a file dealing with fatalities) physical copies are made of the actual incident report and a copy kept in each file.

If there is a request for a specific piece of information then the Fire Safety Division can attempt two approaches to obtain it:

1. To search through the computer listing (produced using the coded reports) for any relevant data.

2. To try and retrieve the information from the actual incident report using the box-type of information retrieval system.

Needless to say, any such request(for example the breakdown of statistics for individual brigades)involves an inordinate amount of time and effort.

6. THE PROBLEM AREAS

6.1 Local Difficulties

When looking at the incident reporting and information retrieval systems at the local level, we can identify several major problems and inadequacies.

1. The local brigade is doing a considerable amount of work in the filling out of reports (especially for the Fire Commission) and is getting no direct benefit from it.

2. There is a lack of consistency and accuracy in the way that data is recorded.

3. There is a duplication of work in the filling out of Commission reports.

4. There is a heavy workload imposed upon the Fire Safety Division which is brought about by:

   a) A great deal of effort going into the production of annual/monthly reports when this information has already been recorded.

   b) An even greater effort which is required to answer specific questions on previous incidents.

5. The brigade is not being presented with and is not able to get the type of information that it considers relevant and useful.

6.2 Fire Commission Difficulties

The Fire Commission has several problems in its Fire Safety Division in the handling of incident reports.

1. The system does not collect enough data. In fact there is indecision as to what type of data should be captured, how it is to be captured and how much is necessary.

2. What data is captured (locally) loses some of its accuracy and becomes more generalised because of inadequate coding structure.

3. It requires a great deal of effort by the Fire Safety Division to produce their annual reports because the computer program is inadequate which means that there is a duplication of manual and computer work.

4. There is a duplication of work at the local and national level in that they both produce the same sort of annual reports. That is the local reports are just a breakdown of the analysis of the national data.

5. There are immense problems involved in retrieving any data not specified directly in the reports.

7. A LOOK AT OTHER SYSTEMS

7.1 The N.F.P.A. Uniform Code

In 1969 the National Fire Protection Association (NFPA) of America established a committee on fire reporting. This committee developed and published the NFPA 901 or "Uniform Coding for Fire Protection" standard. The standard consists of definitions, standard terminology and a classification system for data pertaining to fire brigade incidents. It allows fire departments to classify the data they collect in a uniform manner throughout the country.

The NFPA structure is made up of five basic areas:

1. Property Classification (which identifies the type of property and its occupancy type, that is the use it is put to).

2. Pre-fire Information (which assesses the relative fire risk of a specific property.)

3. Ignition Characteristics (which identify those factors which are important in starting fires.)

4. Incident Report (which records the incident, including the situation on arrival, the action taken and the extent of damage).

5. Injury and Loss (which assesses information on injuries to people).

The standard provides numeric codes for the data. Some categories of data in the standard are broken down into greater detail (for example Occupancy type or fixed property use.) To encode the maximum level of detail may require the use of up to three digits in the code.

For example the Occupancy code is grouped into nine broad categories:

1. Public Assembly Property

2. Educational Property

3. Institutional Property

4. Residential Property

5. Store, Office Property

6. Basic Industry, Utility, Defence Property

7. Manufacturing Property

8. Storage property

9. Special Property

Educational Property can itself be further detailed.

21. Non boarding school

22. Boarding school

23. Trade, Business school

24. University

And finally, the last level of detail gives the exact type of occupancy for say, a non-boarding school:

211. Nursery

212 Kindergarten

213 Primary School

214 Intermediate school

215 High School

This pyramid type of coding structure means that data on say property use can be coded in as much detail as required. To enclode the maximum amount of detail, all the digits are used, but if less detail is required, then the code has been designed so that the last digit or two digits can be dropped, leaving a "coarser" form of data.

7.2 Two NFPA Incident Reporting Systems

The NFPA have developed two incident reporting systems for fire services that are based on the NFPA coding standard.

1. An incident reporting system designed primarily for the collection of data at a community level which can be aggregated at state and national levels.

2. The Uniform Fire Incident Reporting System (UFIRS) which was developed by the NFPA for the Department of Housing and Urban Development.

The first system consists of two input forms (the Basic Incident Report 902F and the Basic Casualty Report 902G (appendix F). The American Government is promoting the use of this system at the state level and is planning to aggregate data at a national level.

For every incident a Basic Incident Report is filled out and if the incident involved casualties, then the Basic Casualty Report is also completed. Each incident report is basically the same regardless of the type or scale of the incident. If extra information is required on "exposure" fires (those that are started in other property as a result of the primary fire) then a separate report is filled out with the same incident number as the primary report but with a sequential "exposure fire" number.

The system is designed so that the smaller fire departments can manually aggregate data periodically for analysis. It can also be handled by computer and NFPA have developed some computer programs to edit data from these forms and to build a data base.

The UFIRS system was also designed for installation at the local level and is marketed with computer software to build a local data base and report from that data base periodically.

The input forms consist of an Alarm Report (FD 100) Field Incident Report (FD 200), Resources Utilization Report (FD 200A), Company Incident Report (FD 300), Fire Investigation Report (FD 400) and Casualty Report (FD 500). (Appendix H). The Alarm Report and the Field Incident Report form the basic system and the use of other reports is optional. A reasonable size fire department would probably use the FD 100, FD 200, FD 300, and FD 500 input reports. The basic system generates twelve output reports periodically including company activity breakdown, resource usage by district, casualties by incident, source of alarms and property type by district.

7.3 Acceptability of NFPA to New Zealand

When considering the acceptability of these systems in New Zealand we have to consider both the coding structure and the reporting procedures.

The coding scheme to be used is very important. It is necessary to have a code that is

1. Comprehensive enough to cover all possible situations.

2. Not too general, so as to be useless because of the lack of details.

3. Not too complex, so the details cloud the important data.

4. Relatively simple and easy to encode incident reports with.

The NFPA standard meets most of these requirements and is a very suitable coding scheme. However it is obviously American in origin, and it would have to be extensively adapted to suit New Zealand.

Both the reporting systems are well designed. However the number of forms and amount of work confronting the user of UFIRS is rather daunting, especially when considering volunteer brigades. On the other hand, the first system based on forms 902F and 902G seems to be the basis of a highly workable system. It is similar in some ways to the present system and certainly captures almost all the information that is captured at present.

Looking at the form itself, it is an improvement over the current New Zealand form. Its visual appearance is pleasing and the block structure readily identifies which sections have to be completed for which incidents.

Obviously modifications would have to be made to both the coding standard and to the reporting procedure before they would be acceptable in N.Z. However they are a good basis to work on and develop.

8. INITIAL IDEAS

8.1 The Proposed Mobilising System

As has already been mentioned, the mobilising system is the central process of the Fire Service system. Therefore, when designing an Incident Reporting system it was decided that it was important to consider and perhaps incorporate the proposed computerized mobilising system into the Incident Reporting system.

Before going any further it is important to understand exactly how the proposed computerized mobilising system will work. It would consist of a mini computer with about 64 K of main memory as the processing unit and would have disk drives for secondary storage. For input and output there would be two visual display unit (VDU) terminals and a printer.

All alarms for the Fire Brigade go through a control room and are handled by control room operators who turn out the necessary appliances to the incident and monitor the progress of all incidents in their area.

The mobilising system is a 24 hour, on line system that handles all alarms that are received by the Fire Brigade. When an alarm occurs, the control room operator immediately enters either the address of the call of the Private Fire Alarm (PFA) number (a unique identifier for private fire alarm systems). If the call is a PFA then this could be handled by either of two ways. The mobilising system could inform the control room operator of any special considerations that need to be taken for this particular incident. These might include notifying the Police or M.E.D. or recommending which appliances should be despatched. Alternatively this could be handled by a micro-fiche retrieval system (possibly connected directly to the alarm receiving equipment) since this information is essentially static. The control room operator can then turn out those appliances that are required, logging this on the mobilising system.

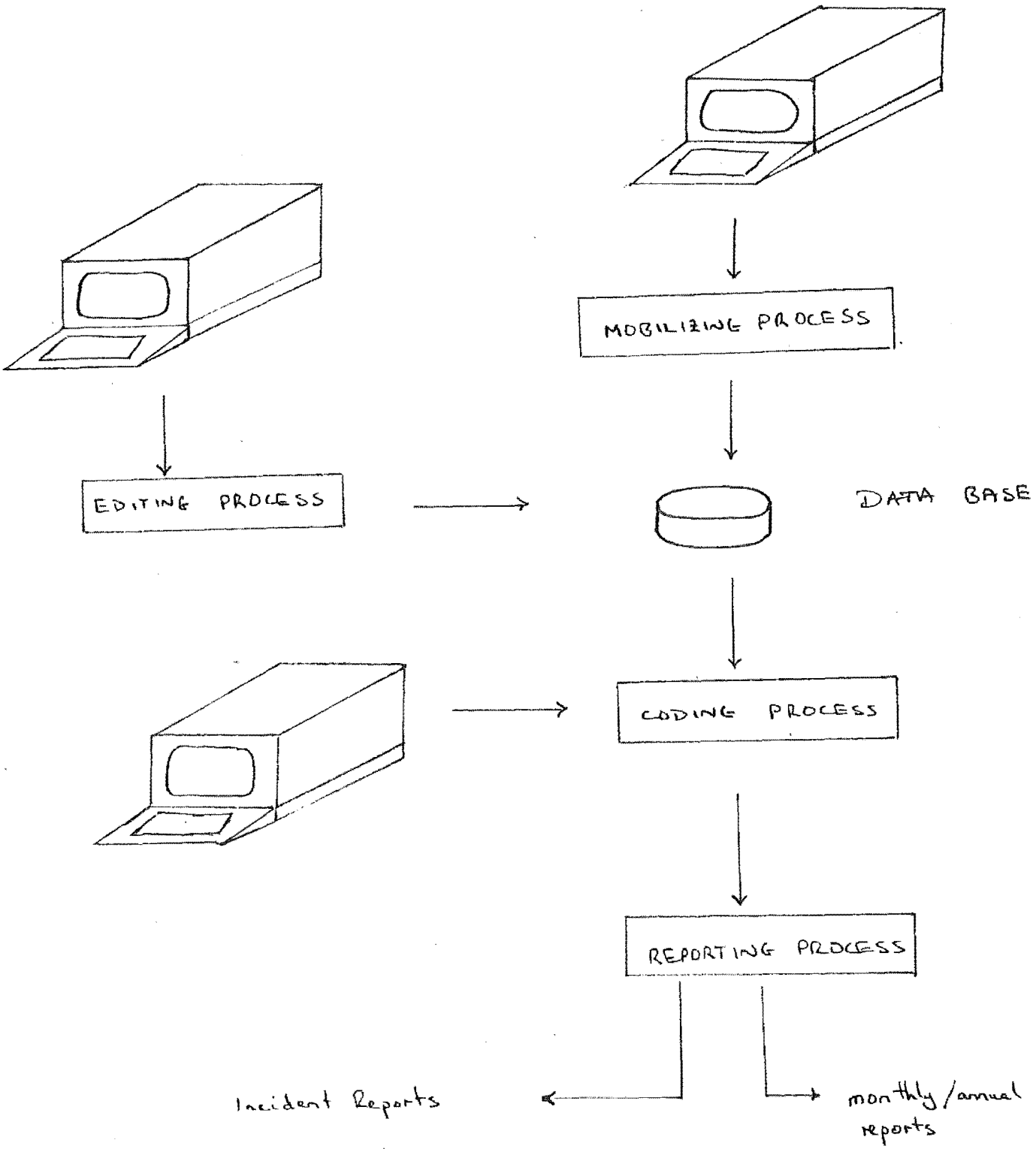
The control room operator is kept informed about the general situation by various status displays. He can look at the number, type and disposition of appliances for every station in the district. Or he can review all the current incidents and the appliances committed to them.

The mobilising system records all appliance movements and is capable of warning the control room operator when certain "zones" or areas have less than the recommended number of appliances available. The system also keeps track of the progress on any incident (by logging coded messages) and maintains an accurate record of the time with which each incident proceeded.

In general, the computerized mobilising system enables the control room operator easily and efficiently to turn-out appliances to incidents, to handle the subsequent situation and by providing prompts to the control room operator when necessary, ensures a constant surveillance of the current situation.

8.2 The Reporting System

By incorporating the mobilising system the incident reports could be generated by a four stage process;



1. The turn out data is handled by the mobilising system and saved in a data base.

2. Then, after (or even during) the incident, the remaining non-mobilising data (for example cause of fire, property damage, equipment used) can be entered directly into the computer's data base.

3. The reports have to be coded before processing, and this can be done at any stage.

4. Finally, the fully "written" incident report can be produced and the monthly/annual statistical reports can be output.

There is still the need for a manual system not only for backup purposes but because only a few stations would have the computerised mobilising system and the other stations would need some method of storing their incident data in the data base if they were to benefit from the computerized processing of incident data. Also there must be provision for simple editing and retrieval of incident reports because there are often additions or corrections to be made to the report.

8.3 Conclusions

This system would enjoy several benefits over the present one:

1. By making use of the mobilising system, it ensures that data that is captured by the mobilising system does not have to be recorded again.

2. It reduces the amount of work involved in producing the incident report.

3. It obviates the necessity of duplicating reports (for the Fire Commission) by hand.

4. And it constructs a data base on incidents which is available for querying.

However, it must be realised that the computerised mobilising system described above was only a pilot system running on the University's B6700 computer. The exact form of the mobilising system had not been decided on, and in any event the Fire Service had no suitable mini-computer to implement the mobilising system on at that stage.

Therefore it was necessary to design an alternative system that relied on the present manual mobilising system and see whether the difficulties of the Fire Service could be overcome in some other way.

9 AN EXPERIMENT

9.1. Initial Proposals

It was decided to set up a simple reporting system on the University's B6700 computer as an experiment. While this was only an experiment on the local level, it still reflected accurately the situation both at local and Commission level. It was hoped that from this experiment that some insight could be gained into what was required to set up and run the reporting system on computer and the difficulties that could arise:

Specifically there were three areas that would be covered by the experiment:

1. The final reports.
2. The data capture and coding.
3. The preparation of data in machine-readable form and the processing of the data.

9.2 The Final Reports

In order to decide on the format of the final reports output it was necessary to decide what sort of information is to be produced. This was a major difficulty encountered throughout the project, of the information retrieval system by the Fire Service in the way of information. Despite repeated inquiries, the Fire Service (even at Commission level) still seems unclear as to what it wants.

Therefore an arbitrary decision was made to collect all the data necessary to produce the monthly/annual types of report and output reports of this format. The computer output report consists of:

1. An analysis of structure fires (for example type of building, damage, causes of fire).
2. A summary of all incidents (for example incident type, action taken, alarm type station attendance).

The computer output report was a monthly report (Appendix L).

9.3 Data Capture and Coding

In order to capture and code the incident data it was necessary to design both an input form (Appendix I) and a coding scheme (Appendix J). Since the data was to be put in machine-readable form (that is punched on cards) directly from the input form, thes meant that the input form had to be designed so that it was easy to fill out by the Fire Service personnel and easy to prepare punch cards from. It was necessary to design the form in conjunction with suggestions from the Fire Service (Station Officer K. Wayman) and the Senior Punch-card Operator (Mrs McArthur).

The coding scheme was taken mainly from a version of the NFPA code that had been adapted specifically for the N.Z. Fire Service by the Fire Safety Division in Wellington. The modifications made to the New Zealand adapted version for the experiment were mainly simplifications (for example the property use code was condensed from three to one digit).

For the purposes of the experiment it was decided to process the incident reports for the first three months of this year. It was thought that this would provide a better idea as to how long it would take to fill out and code the reports than if the incidents had to be processed as they happened. Therefore the input form was used solely for the purpose of capturing the necessary data from the existing Christchurch Fire Service reports.

The data capture and coding was done by two local firemen. It took them approximately one man week to complete a month's incidents (about 300-350). Once they had been shown how the input forms were to be completed (taking about 15 minutes) there were few problems associated with filling out the forms.

9.4 Data Preparation and Processing

The preparation of punched-cards presented few problems. The accuracy of the data was good especially considering the limited time the experiment involved. And the time taken to prepare a month's incidents was about two - three days. It must be realised that this card punching was done by only one operator and that she was doing other work at the same time so a more accurate estimate of the time taken to prepare the incidents would certainly be less than the two - three days actually taken.

The design of the processing programs and the processing of the data proved to be a straightforward task (Appendix K). For the purposes of the experiment a proper data base was not set up, but instead a file consisting of the incidents was set up for processing:

The file consisted of:

1. Data common to all incidents
2. A pointer to an array of addresses
3. A pointer to an array of appliances used
4. A pointer to an array of property fire data (if it was a property fire).

There are two programs designed:

1. An editing program which read in the punched cards, did some elementary error checking and set up the incident file.
2. An analysing program which read in the incident file, analysed the data and output the record.

The execution of the programs took in the order of three-four seconds processing time for the analyser, six-eight seconds for the editor and one-two seconds input/output time for both.

9.5 The Results

The experiment achieved what it was intended to do, that is, the production of statistical reports in a straight-forward manner. However, there were some difficulties revealed by the experiment:

1. There were interpretational problems with the firemen filling out the reports until it was explained clearly and demonstrated to them, the correct way of completing them.

2. Volunteer stations tend to give a false impression with manning figures (say ten per appliance rather than the normal three to four).

3. There was no special provision made for vehicle fires and accidents although the firemen felt that this was a type of incident that was occuring relatively frequently.

4. The major difficulty was the inadequacy of the equipment used section:

   a) Only one type of equipment used was allowed for on the form whereas several types were often used.

   b) A lot of the equipment in the code is infrequently or never used.

   c) There was no coding provision for other special equipment (for example rescue gear, breathing apparatus) or for everyday equipment that is used frequently (for example sawdust, broom, siphon).

10. A POSSIBLE SOLUTION

10.1 Introduction

The experiment in incident reporting showed that the duplication and complexity of the present system (at both the local and Fire Commission level) can be handled in a more simple and straightforward manner. Much of the work that has been taking the Fire Safety Division in Wellington and Christchurch a great deal of time and effort effectively was done by two firemen, one punch card operator and a few seconds of computing time.

Therefore it is recommended that the New Zealand Fire Service overhaul their entire incident reporting system. There are five areas that have to be examined.

1. The general data flow and data processing system
2. The data collection and information required
3. An incident report form
4. A coding scheme
5. A central data base and enquiries to it.

10.2 The General System

At present the processing of data at the Fire Safety Division in Wellington is awkward and time consuming. There is also the duplication of this work by the local brigades. It would be much better if there was one integrated information system to handle the information requests of all levels of the Fire Service. All the data processing of incident reports should be done on computer at the Fire Safety Division in Wellington.

There would be several stages to this system:

1. Data should be captured, recorded on standard report forms and coded, all at the local level and sent to Wellington.
2. These reports can then be prepared in machine-readable form directly from the reports.
3. Then the incidents can be analysed by computer to produce national and local statistical information for monthly or annual reports and to set up a general data base on incidents.

It is important that the computer program do most of the data processing. That is, apart from the preparation of the data into machine-readable form, all the processing can be done by the computer, including

1. data verification and validation

2. Statistical analysis of data

3. Output of reports in a format suitable for direct publication.

10.3 Data Collection

The existing system collects a reasonable amount of raw data but is not producing much information from it. And it is obvious that the local brigades are not being given information which they consider useful in preventing or extinguishing fires. The solution is not to collect a great deal more data but to analyse the data that is available much more deeply and carefully. In fact, there is no need to collect much more data than is already captured. There should be two levels of data capture.

1. Capture the minimum of data that is relevant on all incidents.

2. For those few incidents in which it is necessary to collect extra data, special reports (for example the BRANZ report) can be used.

It is important to realise that if a great deal more data than is collected at present is wanted (as has been suggested by the Fire Service) then not only will it be hard to get Fire Service personnel to collect this data but it will also result in a great deal of inaccurate data being recorded.

10.4 The Incident Report

The design of the incident report form is very important. It should be straightforward to fill out and require the minimum amount of relevant data. It is obvious that the input forms proposed by the Fire Safety Division in Wellington (Appendix M) are definitely not suitable. A lot of unnecessary data is asked for and the structure of the forms is inadequate.

The form should be designed along the lines of the NFPA incident forms. It should be structured in blocks so that the minimum amount of work is done for most incidents. There should be provision on the form for written and coded data. A suggested incident report form is included in Appendix O.

10.5 A Coding Scheme

The coding scheme should also be based on the NFPA code (as the Fire Safety Division has already attempted). However, there is the need for substantial modifications to the code to suit it to New Zealand. Although an attempt has been made to adapt the NFPA code, it is still not suitable.

The terminology is not suitable and the code needs to be extended in certain areas, notably in Fire Service equipment. Some suggested extensions to the code are included in Appendix P.

10.6 A Data Base

All the data processing for the Fire Service should be done by computer in Wellington. This processing consists of:

1. Producing periodic reports (for the Fire Commission and for local brigades).

2. Satisfying other requests for information that is not produced as a matter of course.

At the same time that national statistics are being produced for the Fire Commission individual brigade statistics can also be produced. This would remove the duplication in processing that is present now.

There is also the necessity to set up and maintain an incident data base for the other requests for information not normally produced. Although for most national processing a sequential data base would be all that was necessary, these other requests would be from individual brigades. This means that it would be more efficient to organise a hierarchical data base sorted on individual brigades and fire districts. All requests for information by local brigades would have to go through the Fire Safety Division in Wellington where they would be processed by some data base enquiry system and the results would be returned to the local brigade. There is no reason why this type of enquiry could not be handled within a reasonable time provided that there are good communications between local brigades and the Fire Safety Division.

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APPENDIX A NOTES FOR FIRE REPORT (FSC 3)

F.S.C.—3

NOTES FOR FIRE REPORT

Call No.....

Date ..... Time of call: .....

How call transmitted: .....

Officer in Charge: .....

Name and Address of Occupier: .....

.....

.....

Name and Address of Owner if different from above: .....

.....

.....

Distance, if beyond fire district: .....

If false alarm reason and defects if any: .....

.....

.....

(If false alarm no further details are required.)

Personnel or Equipment from other Brigades, etc.: .....

.....

.....

IF VEHICLE, make, type, and reg'n No.: .....

.....

IF BUILDING, size: .....

No. and construction of floors: .....

.....

Internal partitions: .....

Roof: .....

Occupancy: .....

Sprinklers, automatic alarms, etc. (make and type): .....

.....

.....

No. of sprinkler heads operated: .....

IF PLANTATION, crop and acreage: .....

.....

P.T.O.

F.S.C.—3

Supposed cause: .....

.....

.....

.....

Where fire started: .....

.....

Extent of damage: .....

.....

.....

How extinguished: .....

.....

.....

Persons dead, injured, or rescued (name, address, age and sex): .....

.....

.....

.....

How rescued: .....

.....

Salvage: .....

.....

Special Service details: .....

.....

.....

.....

Time last appliance returned to Station: .....

ADDITIONAL NOTES: .....

.....

.....

.....

.....

APPENDIX B CHRISTCHURCH FIRE REPORT

NEW ZEALAND FIRE SERVICE

CHRISTCHURCH FIRE REPORT – CONFIDENTIAL 1st ATTENDANCE: 2nd:

CALL No. DAY AND DATE: TIME OF CALL: HRS.

ADDRESS OF INCIDENT: AREA:

NAME OF OWNER/OCCUPIER:

ADDRESS:

111 Em. Service:		Street Alarm (State Code No.):		Running Call:	
Exchange Tel:		Private Alarm (State Code No.):		Other Means*:	

F.A. Good Intent:		Special Service*:		KEYS No.	Removed at:
F.A. Malicious:		Chimney Fire:			Returned at:
F.A. Accidental:		Rubbish Grass Scrub:		Off i/c 1st Att:	
F.A. Def. App.		Property Fire*:		Off i/c.	

Attendance	Out	Arrived	Returned	Attendance	Out	Arrived	Returned

Police:	Electricity:	Alarm Co.:
Traffic:	Gas:	City Engineer:
Ambulance:	Water:	Fire Safety:
CD Control:	Bldg. Owner:	

Description of Property:

Occupancy:

Were Sprinklers Installed? YES/NO No. Heads Operated:

Were Auto Fire Detectors Installed? YES/NO Other Auto. Devices:

SUPPOSED CAUSE:

WHERE FIRE STARTED;

DAMAGE: (1) Unit Involved (2) Percentage of Damage to Unit:

☐ One Room	☐ One Floor	☐ Single Occupancy	☐ Single Building	☐ Range of Buildings
☐ 0 - 10%	☐ 11 - 20%	☐ 21 - 30%	☐ 31 - 40%	☐ 41 - 50%
☐ 51 - 60%	☐ 61 - 70%	☐ 71 - 80%	☐ 81 - 90%	☐ 91 - 100%

How Extinguished:

Total Hose Used: metres. Hose Reel: litres used

B.A. Used: –Normalair: Draeger:

Loss of Life, Injuries, Rescues:

Salvage:

APPENDIX C AN INCIDENT REPORT WITH FIRE CONTINUATION SHEET.

NEW ZEALAND FIRE SERVICE FSQ INVESTIGATION ___/___/___

CHRISTCHURCH FIRE REPORT – CONFIDENTIAL 1st ATTENDANCE: 1,4,23 2nd: 5,7,

CALL No. 3253 DAY AND DATE: WEDNESDAY, 9 NOV 1977 TIME OF CALL: 1322 HRS.

ADDRESS OF INCIDENT: Chester St West AREA: City

NAME OF OWNER/OCCUPIER: Cathedral Grammar School.

ADDRESS: THE CATHEDRAL GRAMMAR TRUST BOARD, 2 CHESTER ST, CHRISTCHURCH

111 Em. Service:	X	Street Alarm (State Code No.):		Running Call:	
Exchange Tel:		Private Alarm (State Code No.):		Other Means*:	

F.A. Good Intent:		Special Service*:		KEYS No.	Removed at:
F.A. Malicious:		Chimney Fire:			Returned at:
F.A. Accidental:		Rubbish Grass Scrub:		Off i/c 1st Att:	S/O Richards
F.A. Def. App.		Property Fire*:	X	Off i/c.	D.C.F.O.

Attendance	Out	Arrived	Returned	Attendance	Out	Arrived	Returned
1/1	1323	1324	1503	7/1	1350	1353	1438
1/2	1323	1324	1444	F16	1357	1359	1447
4/1	1327 RH	1330	1540	F35	1357	1401	1441
2/1	1327	1329	1539	3/2	1359	1407	1421
3/1	1327	1331	1645 HQ	F5	1327	1330	1509
1/4	1327	1331	1455	F3	1330	1330	1443
1/3	1328	1330	1447	F2	1340	1343	1445
5/1	1342	1350	1654	1/5 (F16)	1617	1625	1817

Police:	1333	Electricity:	1325	Alarm Co.:	
Traffic:	1325	Gas:		City Engineer:	
Ambulance:		Water:	1325	Fire Safety:	PFPO 1404
CD Control:		Bldg. Owner:			Industrial Chap 1425

Description of Property: A wood and brick building of 3 wood floors about 25x17m wood internal walls Mansard type gcc clad roof on pitched wood frame.

Occupancy: PPH/ School Rooms

Were Sprinklers Installed? ~~YES~~/NO No. Heads Operated:

Were Auto Fire Detectors Installed? ~~YES~~/NO Other Auto. Devices:

SUPPOSED CAUSE:

WHERE FIRE STARTED;

DAMAGE: (1) Unit Involved (2) Percentage of Damage to Unit:

☐ One Room	☐ One Floor	☐ Single Occupancy	☐ Single Building	☐ Range of Buildings
☐ 0 - 10%	☐ 11 - 20%	☐ 21 - 30%	☐ 31 - 40%	☐ 41 - 50%
☐ 51 - 60%	☐ 61 - 70%	☐ 71 - 80%	☐ 81 - 90%	☐ 91 - 100%

How Extinguished: By Brigade using 4 jets hydrant no pumps and three (3) Hose reels (4)

Total Hose Used: 875m metres. 3 Hose Reels litres used

B.A. Used: –Normalair: 15 Draeger:

Loss of Life, Injuries, Rescues:

/ SISTANCE MESSAGE 1: TIME: 1327 HRS. FROM: D/O Stickings

AT: Cathedral Grammar School Chester St.
Make 1ST Alarm

/ SISTANCE MESSAGE 2: TIME: 1337 HRS. FROM: S/O Daikee

AT: Cathedral Grammar School Chester St.
make 1 additional pump for manpower + BA.

I FORMATIVE MESSAGE 1: TIME: 1330 HRS. FROM: 3rd Officer K-

AT: Cathedral Grammar School Chester St. a building
f 1+2 floors fire on 1st floor 3 JETS + BA in use.

II ORMATIVE MESSAGE 2: TIME: HRS. FROM: K-

AT:

STOP MESSAGE: TIME: 1415 HRS. FROM: DCFO

S OP FOR: Cathedral Grammar School, Chester St.
K44-1.

H	Min.	Occurrence
13	42	from S/O Daikee make 1 additional pump for manpower + BA.
13	46	DCFO in charge of operation
13	49	Informative from DCFO a building of land 2 floors 30% involved in fire 10 BA sets and 4 JETS in use.
13	57	from DCFO. Make 2nd Alarm.
14	11	Informative from DCFO. at Cathedral Grammar School Chester St. a building ~~#~~ about 20X20 m land 2 floors heavily involved in fire 7 JETS and BA in use.
14	29	from S/O Daikee Echo + Bacho now closed down

FIRE REPORT CONTINUATION SHEET

Call No. 3253 | Day and Date: WEDNESDAY, 9 NOV 1977

Hrs.	Min.	Occurrence
18	04	1/2 to Fire Ground Blue Watch.
18	08	1/2 arr
18	32	F6 o/o Joyce to Fire Ground.
18	51	FS' on HQ.
21	06	1/2 on HQ. (BLUE WATCH).

1/1	1/2	4/1.
s/o Salton	ss/o Williamson	ss/o Johnstone
F/M Perreau	F/M Royds	F/M Roderick
" Shury	" Brookland	" Wood
" Dillard	" Lee	" Harris
" Jamieson	" Trerise	" Davies
" Warner	" McKnight	
2/1	3/1	1/4
s/o O'Brien	s/o Smith	s/o Dalzee
F/M Tolan	F/M Chaplin	F/M Pearson
" Hannah	" Chapman	" Stevenson
" Lewis	" Stewart	
" LeComte	" Soper	
1/3	5/1	7/1 Vols
s/o Hoult	ss/o Godman	s/o Cockburn
F/M Breen	F/M Jones	Sub/f Turner
	" Coull	F/M Keats
	" Frampton	" Stym
	" Hook	" Taylor
F16		" Gilmore
s/o Tarry + 5 men (Training)		" Ellis
F35		" Duke
ss/o Senior + 4 men		" De Beus
	Training	" Waitoa
2/7	--	--

FIRE REPORT CONTINUATION SHEET

I No. 3253	Day and Date: WEDNESDAY, 9 NOV 1977

Min.	Occurrence
	1/2 Blue Watch. F3 F2
	SFM Dijkstra 3rd Officer DCFO.
	FM Atkins
	" Russell
	" Fleming
	" Nicholls
	" Tremain
	Names of personnel on pumps from Volunteer Stations not on fire ground in log book.

APPENDIX D CHRISTCHURCH FIRE SERVICE MONTHLY/ ANNUAL REPORTS.

REPORT NO 8

CHIEF FIRE OFFICERS REPORT FOR THE MONTH OF AUGUST 1977

(1) BRIGADE OPERATIONS

a) Summary of Calls Received and Reception Methods

	Telephone 111	Telephone Exch	Str Alarm	Pvt Alarm	Running Calls	Other Means	Total	
False Alarms								
Good Intent	29	26	1	4	1	4	65	(45)
Malicious	22	1	-	4	-	-	27	(19)
Accidental	1	-	-	21	-	1	23	(16)
Defective	2	-	1	39	-	1	43	(53)
Special Services	8	14	-	1	-	15	38	(19)
Actual Fires								
Chimney	41	7	-	-	1	1	50	(30)
Rubbish, Grass	15	7	-	-	-	3	25	(16)
Property	82	6	-	1	1	1	91	(66)
TOTAL:	200	61	2	70	3	26	362	(264)

Corresponding figures for August 1976 are shown in brackets, an overall increase of 98 calls.

b) Total calls to 31.8.76 = 2400 31.8.77 = 2458

c) Station Attendance to Calls

	1st Attend	In Support	Total	Hose Used	KM Run	Fuel Used
Headquarters station	105	69	174	3540	26993	2421/1747
No 2 station, Sydenham	47	29	76	625	909	-/414
No 3 Station, St Albans	48	25	73	250	1330	718
No 4 station, Woolston	38	16	54	1875	1261	668
No 5 station, Sockburn	57	14	71	1975	1457	664
No 6 station, Harewood	27	26	53	325	795	441
No 7 station, New Brighton	29	1	30	425	287	302
No 8 Station, Sumner	5	-	5	100	208	94
No 9 Station, Lyttelton	5	-	5	175	204	232
No 10 Stat. Diamond Harbour	-	-	-	-	37	36
No 11 Station, Brooklands	1	1	2	-	110	80
TOTAL:	362	118	543	9290	33591	5656/2161

d) Property Fires Total for month: 91 Year: 574

) Property Affected

Dwellings	Total for month:		56	Year:	302
Manufacturing and Industrial	"	"	2	"	37
Shops and Offices	"	"	6	"	21
Places of Public Assembly	"	"	1	"	11
Bulk stores and Warehouses	"	"	-	"	5
Agricultural buildings	"	"	2	"	7
Miscellaneous buildings	"	"	-	"	3
Transport	"	"	12	"	126
Miscellaneous Property	"	"	12	"	62

(2) FIRE SAFETY AND PREVENTION

a) Inspections and Reports	Christchurch Month	Christchurch Year	Fire Safety Inspectorate Month	Fire Safety Inspectorate Year
i) Hotels, Taverns, Licensed Restaurants	19	223	3	94
ii) Places of Assembly, Apartment Buildings	221	452	-	216
iii) Registered Childrens Homes	-	6	-	1
iv) Private Hospitals, Old Peoples Homes	-	24	-	1
b) Fire Services Act				
Evacuation schemes for buildings				
Draft fire safety schemes for approval without amendment	-	1	-	4
Exemptions from regulations	-	-	-	-
Evacuation drills	6	171	-	2
Inspections for firefighting purposes	-	36	-	3
Fire prevention surveys, advice	30	212	1	11
c) Factories Amendment Act 1971				
Fire Safety inspections at request of Local authority	9	366	-	33
d) Miscellaneous Activities				
i) Alleged Fire Risk Investigations	-	11	-	-
ii) Post Fire Investigations	23	125	-	4
iii) Investigations - Suspected By-Law Infringements	-	20	-	-
iv) Building Plan inspections	4	24	-	15
v) Routine inspections	-	31	-	1
vi) Lectures:				
Brigade personnel	5	10	-	-
Service clubs, Community Organisations	1	27	-	2
National Safety Assn courses	1	7	-	3
Government departmental courses	1	3	-	-
Industrial, commercial	2	8	-	1
Schools	4	16	-	1
TOTALS	326	1773	4	392

(3) WATER

Hydrant Inspection	No Inspected	Faults Reported
Christchurch City	985	60
Waimairi County	133	
Paparua County	186	10
N.Z. Railways	2	2

Areas Inspected

Tiora Place, Middleton Road, Lockie Road, Janet Street, Aileen Avenue, Nanette St, Acacia Avenue, Arther St, Hornby High School, St Asaph Street, Antigua Street

(4) ALARMS

a) Attendance to Automatic Fire Alarm systems

Total for month: 70 Year: 649

Causes:

Fires	2
Good intent	2
Malicious	4
Accidental	23
Defective App.	39

b) Street Alarms

Total number installed	56
Total number tested	98

c) Automatic Alarms Connections

Total for month: 5

d) Automatic Alarm Disconnections

Total for month: 4

(5) PLANT AND EQUIPMENT

a) Receipt of New Equipment

Protectus	128 pr 70mm couplings
	128 pr 45mm couplings
	256 70mm hose defenders
	256 45mm hose defenders
Hawkeswood	24 Syd. standpipe washers
"	6 pr safety goggles
Cable Price	10 ft 3/16 Galv. chain
Alex Farrar	1 metal tool box

b) Workshop Activities

All equipment tested in accordance with Fire Service Commission requirements and found satisfactory. Repairs were carried out as required.

The following appliances were returned to Brigade workshops for repair and servicing: 2, 8, 9, 13, 16, 19, 21, 23, 27, 28, 32, 33, 34, FWP No 1, Amberley FWP, Lyttelton trailer, TTL ex Auckland, Rakaia land rover 24.

(6) STAFF

Resignations - Permanent staff	1
Appointments - Permanent staff	1
Disciplinary Action	Nil
Appointments - Volunteer staff	1
Resignations - Volunteer staff	1
Promotions	Nil

cont/...

(7) DRILL AND TRAINING

a) Permanent staff - Training completed

	Drill Hours	Man Hours	Buildings Inspected
Headquarters - Blue Watch	28	161	4
Red Watch	40	199	5
Green Watch	26	260	-
Brown Watch	14	217	-
No 2 station	64	323	5
No 3 station	69	418	12
No 4 station	66	332	8
No 5 station	69	347	12
No 6 station	69	349	13
	445	2606	59

b) Fire Service College - Wellington

Metrics Course from 1.8.77 to 5.8.77 Attended by Senior Station Officer Senior.
Station Officer I from 8.8.77 to 19.8.77 Attended by Senior Fireman Dijkstra and Senior Fireman Berg.

c) Permanent staff - De-centralised training scheme

Advanced Firemans course C7 (A) from 25.7.77 to 19.8.77.
Attended by 10 firemen.

P.K. Weeks
CHIEF FIRE OFFICER

APPENDIX E. N.Z. FIRE SERVICE COMMISSION FIRE REPORT (F.S.C. 2A)

FIRE REPORT-CONFIDENTIAL NEW ZEALAND FIRE SERVICE COMMISION

PRIVILEGED – For use of the Fire Service Council and Urban Fire Authorities only.

A. ***Details of Call*** – Brigade: .....

Day and Date: ..... Time ..... Call No. .....

Address of Incident: .....

Name of Occupier: ..... Name of owner and address if different from "occupier": .....

☐ In Fire District. ☐ In Protected Area ☐ Beyond Protected Areas.

B. ***How Call Transmitted;*** ☐ Exchange Telephone. ☐ 111Emergency system. ☐ Private fire telephone.

☐ Street fire alarm. ☐ Private auto alarm. ☐ Running call. ☐ Other means – Incl. radio.

C. ***Details of Attendance:***

Appliances	S.P.Pumps	Portable and Trailer Pumps	Hose-reel Tenders	Aerial Appliances	Escapes	Salvage Tenders	Others
Attending Incident....							
Used at Incident....							

PERSONNEL	(a) Responding to Call		(b) Attending at Incident	
	Officers	Men	Officers	Men
Permanent Staff				
Auxiliary				
Volunteer				
Fire Police				

REINFORCEMENTS

..... Brigade

Called by ..... Brigade.

(Extend overleaf if necessary)

ASSISTING BRIGADE TO COMPLETE TO D. ONLY

D. ***Category of Call:*** False alarms – ☐ Good intent. ☐ Malicious. ☐ Accidental. ☐ Defective Apparatus.

☐ Special Service. ☐ Chimney fire. ☐ Rubbish, grass, or scrub fire. ☐ PROPERTY FIRE.

E. ***Brief Description of Property*** (State construction, i.e., wood, brick, etc., number and type of floors); .....

.....

.....

If a building, state type of occupancy: .....

Were automatic sprinklers installed ? ☐ Yes ☐ No. The number of sprinkler heads operating: .....

Were automatic fire detectors installed? ☐ Yes. ☐ No.

Other automatic devices (give details): .....

Supposed Cause: .....

.....

Where fire started: .....

Extent of Damage: (1) Percentage of damage to unit, (2) Unit involved.

(1) ☐ 0% to 10% ☐ 11% to 20% ☐ 21% to 30% ☐ 31% to 40% ☐ 41% to 50%

☐ 51% to 60% ☐ 61% to 70% ☐ 71% to 80% ☐ 81% to 90% ☐ 91% to 100%

OF

(2) ☐ One room ☐ One floor. ☐ Single occupancy. ☐ Single building. ☐ Range of buildings.

(Details of extraordinary damage may be given overleaf)

COMPLETE FOR PROPERTY FIRE ONLY

F. ***How Extinguished:*** If hose-reel only used, state approximately how many litres: .....

..... Brigade engaged ..... hours.

G. ***Loss of Life, Injuries, Rescues:*** .....

..... Information to follow ☐ Yes ☐ No.

H. ***Salvage:*** .....

APPENDIX F REPORT OF THE N.Z. FIRE COMMISSION

REPORT

OF THE

New Zealand Fire Service Commission

FOR THE YEAR ENDED

31 MARCH 1977

Presented to the House of Representatives pursuant to section 46 (5) of the Fire Service Act 1975

BY AUTHORITY:
E. C. KEATING, GOVERNMENT PRINTER, WELLINGTON, NEW ZEALAND—1977
Price 60c

Hon. D. A. HIGHET,
Minister of Internal Affairs,
Wellington.

SIR,

I have the honour to forward you herewith, in terms of section 46 (5) of the Fire Service Act 1975, the annual report of the New Zealand Fire Service Commission, together with balance sheet and statement of accounts for the year ended 31 March 1977.

Yours faithfully,
J. K. HUNN, Chairman.

NEW ZEALAND FIRE SERVICE COMMISSION

Chairman..... Sir Jack HUNN, C.M.G., HON. F.I.FIRE E.
Fire Commissioner ..... W. J. HENDERSON, O.B.E., F.I.FIRE E.
Fire Commissioner ..... F. A. HARDY, Q.F.S.M., F.I.FIRE E.

Chief Executive (Technical), S. B. IRVINE, F.I.FIRE E.
Director of Administration, M. C. VERRAN

REORGANISATION OF FIRE SERVICE

Nationalisation

Pursuant to the Fire Service Act 1975, the independent urban fire authorities were abolished on 1 April 1976 and the 277 local fire brigades were integrated in a single New Zealand Fire Service under Commission control.

The occasion was marked by special parades at the six regional headquarters. Individual commissioners attended at Auckland, Wellington, and Christchurch, and their deputy at Dunedin.

Fire Districts

The existing urban fire districts continue to be the basic territorial units, except that the Petone and Hutt Valley fire districts have been amalgamated and a new district has been constituted at Duntroon. Auxiliary units have been established under parent districts as follows:

Dipton	No. 6B/6	(Winton) District
Papamoa Beach	No. 2B/1	(Tauranga) District
Port Waikato	No. 1A/10	(Tuakau) District
Rai Valley	No. 5B/3	(Havelock) District
Renwick	No. 5B/2	(Blenheim) District

No new industrial brigades were registered by the Commission during the year.

Fire Areas and Regions

Some 22 fire areas (mainly operational) and 6 fire regions (mainly administrative) were defined, and published in the *Fire Service Gazette.*

The newly appointed regional and area commanders were all stationed in readiness at 1 April 1976.

Assets and Liabilities

The Act decreed that the assets and liabilities of urban fire authorities would pass automatically to the Commission on 1 April 1976. The actual process, however, has been unduly protracted and is still incomplete. The situation at 31 March 1977 (12 months after D-Day) was as follows:

Liabilities transferred:	$(000)	Assets transferred:	$(000)	
Loan liabilities	11,126	Investments of special funds:		
Special fund account	2,547	Reserve funds	1,778	
Capital account	25,027	Gratuity funds	175	
		Sinking funds	590	
		Trust funds	4	
		Other	76	
				2,623
		Fixed assets		34,171
		Net working capital (current assets less current liabilities)		1,906
	$38,700			$38,700

In addition, the Commission inherited commitments for capital expenditure which totalled $3.788 million for the first year.

The net loan indebtedness for which the Commission became responsible ($11.1 million) had to be ascertained painstakingly from secondary sources.

Emergency arrangements were made with the Reserve Bank and Bank of New Zealand to avoid any default in payments of interest (or principal) to bondholders on due dates.

About 70 local authorites have either refused to relinquish titles to land or ignored all requests. In a few cases the land may genuinely belong to the local authority (not in its capacity as urban fire authority), and the Commission had the right, within 12 months or mutually extended time, to lease or purchase the land or give up occupancy. During March the Commission elected to lease 32 sites at peppercorn rentals where local authority ownership was reasonably certain, and gave final notice of intention to enforce its claim to Commission ownership in the remaining 38 cases. Some of the latter may well become acceptable as leases once firm evidence of ownership has been provided.

In the circumstances, the Commission's balance sheet for the entire Fire Service as at 31 March 1977 is distinctly provisional.

ADMINISTRATION

Systems

Integration has enabled systems and methods to be "streamlined" — for example:

computer payrolls and direct bank credits;
one bank account for the whole country, not 277;
seven regional accounting centres instead of 278;
loan-raising by the Commission instead of by the former fire authorities individually;
consolidated insurance policies, replacing hundreds;
a fortnightly *Fire Service Gazette* notifying vacancies, promotions, and notices;
standardisation of architectural briefs, fire appliance designs, contract documents, etc;
bulk purchasing on better terms.

These and other changes make for uniform administration, better control, and more efficient systems.

Complaints

The main complaint, shortly before and after the changeover, was that district commanders were being deluged with paper. This was unavoidable and soon subsided. The Commission was required by law to take over 277 brigades, 8000 personnel, a $30 million budget, 700 appliances, and 350 houses from local authorities on a fixed date only 6 months after the Act was passed. This necessitated a spate of instructions to chief fire officers and it was indeed fortunate that a full set of Interim Instructions to Commanders was ready in time.

The other wave of paper comprised order books, vouchers, and other forms which constitute the prime entries for the accounting system. These are standard features of any accounting system. What made them seem unnecessary in some quarters was simply the fact that many volunteer chiefs had had these duties performed for them in the past by the town clerk or county clerk. But many other chiefs had always dealt with accounts themselves and were familiar with the system.

Support

Off-setting some criticism of the New Zealand Fire Service during its first year, there have been many messages of appreciation and support for the concept and the work being done. A typical comment was made in Fire Force Commander L. F. Wilson's final report from Auckland prior to his recent retirement:

> "I am confident that the integration of the Fire Service, the most rapid and dramatic change in its history, will prove to be in the best interests of all. The integrated Service will give more efficient protection of life and property and I am sure its members will continue to conduct themselves well to this end."

Staffing

To carry out on a national scale all the work formerly done by local authorities, the headquarter's staff was inadequate, but the overall increases throughout the Service in the first year have been minimal, viz:

	Operational Staff (incl. Station-keepers)	Administrative Staff (incl. Mechanics)	TOTAL
1 April 1976. .	2 084	244*	2 328
31 March 1977	2 131	271*	2 402
Increases. . .	47	27	74

*Includes 40 employed part-time.

Manuals

Several manuals were compiled for the instruction of staff. Already published are:

Manual of Personnel Administration;
Volunteer Officers Training Manual.
In the final stages of preparation for early publication are:
Manual of Administration (replacing the Interim Instructions to Commanders);
Determinations Manual.

Others in hand are a Finance and Accounting Manual, and a Supply and Stores Manual.

Insurance

In place of the numerous policies of various kinds with different companies, taken out by the former fire authorities, the Commission has consolidated them in the State Insurance Office (which then reinsures with the other companies on an agreed basis).

Conferences

The statutory meetings with the United Fire Brigades' Association were held in August 1976 and February 1977, and with the Insurance Council in March 1977.

Commissioners attended and addressed the annual conferences of the U. F. B. A., Fire Protection Association, Institution of Fire Engineers (New Zealand Branch), Chief Fire Officers' Association, and the National Fire Police Association.

Several conferences were held with regional commanders, regional secretaries, and chief fire officers at national headquarters.

Regional and area commanders held frequent conferences with district commanders and attended many local meetings and conferences.

Honours and Awards

The Queen's Fire Service Medal for distinguished service was awarded by Her Majesty to:

Senior Station Officer B. R. Braithwaite, Port Chalmers;
Chief Fire Officer A. E. Cattermole, Kaiapoi;
Fireman R. M. Craig, Pukekohe;
Station Officer F. W. Stringer, Silverstream;
Third Officer G. J. Thompson, Christchurch

During the year Her Majesty was graciously pleased to inaugurate a Queen's Long Service and Good Conduct Medal for the Fire Service on the same terms as for the Police, viz., eligibility at 14 years with bars every 7 years thereafter. The medal will soon be available from the Royal Mint. It does not replace the U. F. B. A. 25-year Gold Star, which will remain a coveted honour.

The Commission itself introduced a Certificate of Meritorious Conduct, the first recipients being:

Station Officer G. Daikee, Christchurch and Fireman-Driver N. Steward, Christchurch: for apprehending an armed offender at Sydenham Post Office.

Divisional Officer S. P. O'Neill, Auckland and Senior Fireman D. R. Boyd, Auckland for entering a flooded culvert at Otara in an attempt to rescue two children.

Fire Engineers

Under section 91 of the Fire Service Act 1975 it is an offence to use the words "fire engineer" for business purposes unless in possession of qualifications declared by the Commission to be sufficient. The Commission drew up a set of qualifications in consultation with organisations affected, and notified them in the *New Zealand Gazette* on 14 April 1976.

A Fire Engineers Qualifications Advisory Committee has since been established under section 12 to examine all applications and submit them to the Commission with recommendations. The committee consists of representatives of the Institution of Fire Engineers (New Zealand Branch), New Zealand Fire Protection Association, and the Insurance Council, with a Commission representative as chairman.

Legislation

Several amendments to the 1975 Act, mostly of a machinery nature, are desirable for smooth administration and have been passed to the Department of Internal Affairs for submission to the Minister.

The Fire Service Regulations pursuant to section 92 are reaching a final draft form in the Department of Internal Affairs.

The Code of Practice 1965 is also being revised in the light of the 1975 Act and the anticipated Fire Service Regulations.

Chairman

During the chairman's 10-weeks' absence overseas, the Secretary for Internal Affairs, Sir Patrick O'Dea, acted in his stead.

INDUSTRIAL

After 1 year of Commission control the pattern of industrial relations within the New Zealand Fire Service is still evolving.

The Commission's first determination (D.1) relating to officers and firemen was already in force on 1 April 1976, having been approved by the State Services Tribunal on 5 December 1975.

Further determinations issued with Tribunal approval during the year under review were:

D.2: For executive officers — 13 August 1976.

D.3: For regional commanders — 13 August 1976.

An amendment (D.2/1) extending the jurisdiction of Determination No. 2 to technical staff officers at National Headquarters was also issued with Tribunal approval on 10 March 1977.

Extra payments granted by the former fire boards to the Wellington and Christchurch brigades were intended for elimination at the time Determination No. 1 was issued on 5 December 1975 but were extended temporarily. Although agreement was reached with the unions for termination in July 1976, amendments to the Wage Adjustment Regulations 1974 frustrated that objective. The State Services Tribunal ruled in September 1975:

> "There is no justification for an indefinite extension of these payments. On the other hand, it is a matter for the Commission to determine, after negotiation and communication with the unions, the best method of ending the payments."

By negotiation, a phasing-out formula was agreed with the unions in return for extending the extra payments to the Auckland brigade. The Tribunal gave approval to this joint *modus vivendi* application in Determination 1A. The 6 percent general wage order then reduced the extra loading to 5½ percent from 14 March 1977.

Regrettably the compact with the unions was not acceptable to some of their branches. Industrial unrest followed as the smaller brigades sought to have the payment extended to themselves. The unions agreed, however, to place the matter before the Tribunal under section 19 (5) of the State Services Remuneration and Conditions of Employment Act 1969. The Tribunal doubted whether it had jurisdiction and a ruling on the point is to be obtained from the Supreme Court.

There were protracted negotiations with the State Services Commission and the Public Service Association on a determination (D.4) for administrative staff, typists, and technical staff. It was eventually submitted to the Tribunal and a decision is expected soon, together with a new determination (D.7) for station keepers.

Apart from the dispute about the extra 6 percent allowance, industrial disputes within the Fire Service have been of a relatively minor and localised nature.

However the major Fire Service unions (Auckland and North Shore Fire Brigades' Employees' Union, New Zealand (except Marlborough and Westland) Fire Brigades' Employees' Union) have yet to settle comfortably into their new negotiating environment under the State Services Remuneration and Conditions of Employment Act 1969. Prior to the Fire Service Act 1975, these unions and their predecessors operated under the Industrial Relations Act 1973. The period of transition has produced some strains within the Fire Service, but the Commission's policy of amicable industrial relations has helped to ease them.

Negotiations are proceeding with the unions for a medical compensation scheme related to that for crash firemen in Civil Aviation.

FINANCE

Transition

The incorporation of assets and liabilities of former fire authorities into the Commission's accounts has been a major task. Draft or audited annual accounts of each of the 277 brigades as at 31 March 1976 had to be analysed and merged before the Commission's accounts could be finalised. In 274 cases this has been done. The remaining three brigades will be brought into the Commission's accounts for the next financial year together with any adjustments arising from audit.

Bearing in mind that this is the most significant exercise in the transfer of local body responsibilities since the introduction of Government funding of hospital boards, the results achieved in 1 year, when many new systems were also needed, are cause for relief and satisfaction.

Income

The Commission's operating budget is financed from two main sources, i.e., (1) insurance industry by way of contribution and levy; and (2) Government contribution. The formula for calculating the contributions and levy as prescribed in the Fire Service Act 1975 requires any uncommitted revenue surplus at the end of each financial year to be applied towards the following year's budget. A substantial surplus arose in 1976-77, mainly through levy receipts in excess of budget ($2.8 million) and under-expenditure ($1.3 million) due to late approval of the Commission's budget. This accounts for the bulk of short-term deposits shown in the balance sheet. These funds will, however, be needed to finance expenditure during the first quarter of 1977-78 until further significant contributions are received.

Budgetary procedures

Financial delegation and control procedures have been designed to utilise resources flexibly to the best advantage of the service as a whole, but equitably between regions and between volunteer and permanent brigades.

A summary of budgeted expenditure and revenue for the financial year 1976-77 together with budgeted expenditure and revenue for 1977-78 is shown as an appendix to this report.

Special funds

(1) *Loans:* A Statement of Public Debt transactions for the year is included in the annual accounts.

Net loan liabilities inherited from former fire authorities totalled $11.1 million. In 6 months the Commission raised $1.8 million by public issues solely to finance committed capital works in progress at 31 March 1976. Because of this commitment, the restricted loan market and the embargo placed on new loan works by the Local Authorities Loans Board, no new loan liabilities were authorised during the financial year apart from a modest appliance loan of $450,000.

The three loan issues each of $600,000 floated in respect of committed works are fully subscribed — an encouraging sign of investors' confidence in the new Fire Service.

In addition to the public issues, $267,000 in loan funds was obtained separately and a further $235,000 was raised by way of hypothecation of debenture. These funds were also applied to meet commitments taken over.

A computerised loan accounting system has been instituted for prompt and accurate recording of loan transactions, identification of repayments falling due, forecasting, and for producing the Statement of Public Debt.

The Commission is concerned at the adverse changes occurring in the terms on which loan finance is raised. The shorter terms of investment and higher interest rates mean that revenue equivalent to 23 percent of new loans must be set aside each year for debt servicing charges. For this reason alternative sources, notably revenue and reserves, may need to be relied on to a greater extent for financing the capital requirements of the Fire Service.

(2) *Reserve Fund:* Funds of the order of $1.8 million were transferred from former fire authorities. A substantial part was needed to finance commitments taken over.

The Commission has been (and is) disposing of land and buildings surplus to requirements. Proceeds of such disposals are credited to the Reserve Fund. The state of the Reserve Fund is shown in note 6 to the annual accounts — "Schedule of reserves and investments".

(3) *Gratuities Fund:* The Commission is required to maintain a separate fund to meet terminal gratuities payable to its employees. Separate gratuity accounts of former fire authorities totalled $175,000 and the amalgamated account is being funded for 2 years by contributions from the Commission's current account by which time the pattern of expenditure will be sufficiently clear to determine subsequent funding policy.

Short-term Investment of Current Account Funds

Any current account funds not immediately required are placed on short-term deposit for a few days to several weeks. Total earnings from this source in the 1976-77 financial year were $135,000 which has been transferred to the Reserve Fund. As the use of available resources in this way was not open to former fire authorities individually, the investment income is one of the benefits of the new order.

Interest on Special Account Funds Invested With the National Provident Fund Board

Due to factors beyond the Commission's control, interest to 31 March 1977 on Reserve Funds, Sinking Funds and Gratuity Funds invested with the National Provident Fund Board was not credited to the Commission in time for incorporation into its annual accounts. Because of this the amount of interest earned on these funds has been estimated. An adjustment will be made in F/Y 1977-78 when advice of the sum actually credited has been received.

Capital Expenditure

One of the main concerns has been to identify and ensure continuation of the capital projects and corresponding commitments in train at 31 March 1976. Because of a serious lack of information this was a difficult and time-consuming task. Many capital commitments came to light merely through accounts being referred to the Commission for payment. A summary of budgeted capital expenditure for the 1976-77 and 1977-78 financial years is set out below.

As no new capital works projects were commenced in 1976-77 and only modest expenditure was authorised on new appliances, a backlog of capital requirements has developed which will demand urgent attention in 1977-78.

The major areas of capital expenditure are: capital works, appliances and vehicles, and plant and equipment, including communications equipment.

These are each covered by individual capital programmes designed to give the Commission an overview of essential requirements in regard to priorities and to ensure speedy implementation without the need to consider numerous individual cases separately and in isolation.

Capital Works Programme

The first 5-year works programme of buildings and land purchase was compiled on the basis of priorities recommended by the six regional commanders.

The 1976-77 programme, consisting entirely of commitments as at 31 March 1976, totalled $2,871,000. This sum relates to expenditure which was expected to fall due in 1976-77. In addition, for some major works, further expenditure will be incurred in 1977-78. As indicated earlier, the Commission has made financing arrangements to ensure completion of these projects.

No new projects were commenced in 1976-77 and expenditure in 1977-78 for works scheduled for commencement in that year, subject to approval of the Commission's estimates, totals $2.15 million.

Appliance and Vehicle Programme

Commitments transferred at 31 March 1976 amounted to $917,000. Current policy requires investment of the order of $2 million a year to replace obsolete appliances and to build up fleets in a number of areas in New Zealand where there is rapid population growth. The appliance building industry is subject to rapid cost escalation.

In view of the economic conditions only a modest programme for new appliances, totalling $874,000, was authorised in 1976-77. To avoid the fire-fighting appliance fleet from deteriorating to an unacceptable level more reasonable provision of $2.05 million has been sought in the Commission's budget for 1977-78.

Plant and Equipment Programme

New items authorised during 1976-77 totalled $300,000, including $50,000 for minor communications equipment. This was a modest provision determined in relation to the uncertain financial situation prevailing at that time. The communications field in particular is now seen to have suffered from a lack of co-ordinated planning in the past and there is an urgent need for improved facilities in this area. Additional provision has accordingly been made to partly meet the situation in 1977-78.

Major communications installations are provided for in the capital works programme.

Summary of Budgeted Capital Expenditure

	1976-77		1977-78
	Commitments	New Items	New Items (Subject to approval)
	$(000)	$(000)	$(000)
Capital works	2,871	—	2,150
Appliances and vehicles	917	874	2,050
Plant and equipment	—	300	550
	3,788	1,174	4,750

Computer Systems

The financial systems of the new Fire Service are computer based. During the year the whole range of E.D.P. procedures, designed in advance, came into operation. Some have since been modified in the light of experience.

E.D.P. budget control and ledger systems are working well.

In 1977-78 additional E.D.P. programmes are expected to be developed for, *inter alia,* management reporting, capital expenditure accounting, and statistical applications.

The computerised payroll system has been extended to include all but one of the regional centres and to a number of district pay offices which previously processed pays on a parallel manual basis.

Small Volunteer Brigades

There are over 100 volunteer brigades whose small-scale financial activities represent a relatively minor portion of the Fire Service total budget. It was therefore originally arranged that they would continue to be assisted by their local authorities, funded by Commission grants to be disbursed by the local body on an "imprest" system. During the year the advantages of this separate system seemed to be illusory. Many small brigades have since applied to be transferred to the normal regional accounting system applicable to other brigades. The Commission now actively encourages this trend, with due regard to special circumstances.

STORES

Interim stores instructions were issued in March 1976 and progress is being made towards a common stores system.

The Government Stores Board will permit the Fire Service to participate in its period supply contracts and, at 31 March 1977, 30 such contracts had been authorised for use. Substantial savings can be made where these contracts can be utilised effectively.

A uniforms sub-committee of the Technical Advisory Committee has been established to consider standardisation of design and purchase of uniform clothing.

During the year a specification for firemen's safety boots was developed and an initial order manufactured and distributed. As a result, the Commission's decision that all volunteer firemen be equipped with safety boots by 31 March 1977 was largely fulfilled.

Many of the fire appliances in current use are now so old that spare parts are no longer available from New Zealand stockists. This has necessitated the stocking of certain spare parts on a national basis, and steps are being taken to ascertain and control them to best advantage.

OPERATIONS

Co-ordination

The concept of a co-ordinated fire service, which was foreseen to be sound in principle, is working out well in practice, as a few examples will serve to show:

- at a serious fire in Jervois Quay, Wellington, the area commander called in a special appliance from Hutt Valley;
- the brigades in areas 4A and 4B were mobilised on 20 December to cope with the disastrous flooding in Wellington and Hutt Valley as a combined exercise;

several brigades in Manawatu (area 3A) converged to support Foxton brigade at a charcoal fire;
in Auckland the harbour bridge is no longer a barrier; the metropolitan and North Shore brigades are now in radio communication and turn out wherever they are needed, on either side of the harbour;
appliances withdrawn for overhaul have been replaced on temporary loan, and extra hose has been supplied where needed.

Co-operation which once depended on an "old boy" relationship between the chief fire officers, always subject to the approval of their fire authorities (who sometimes refused), is now rendered as a matter of course through the official chain of command.

The New Zealand innovation has attracted favourable notice in Britain, Canada, and Australia.

Vehicles

The standard vehicle specifications produced by the Commission are continually being refined and developed to produce guidelines specifically suited to the use of standard commercial chassis. This results in economies which helps to "offset" the rapidly escalating costs of vehicles and equipment. An example of the escalation in costs is a 30 metre turntable ladder unit; essential for successful firefighting in "high rise" buildings, would have been $150,000 about 2 years ago now costs in the order of $250,000. Further escalation can be expected.

Twenty-five new appliances have been received during the year. Together with four second-hand appliances, these deliveries allowed 15 obsolete vehicles to be withdrawn from operational service and used as relief pumps as their condition permits. The magnitude of the task of replacing the many obsolete appliances (mentioned in last year's report) requires carefully planned schedules to inject new replacements at appropriate points in order to allow subsequent upgradings in two or more districts. This involves a series of transfers and thus more effectively meeting the requirements of particular districts.

Appliances are now transferred more readily according to priority of the requirements. An example is the temporary location of a 1954 Leyland Merryweather turntable ladder from Auckland to Christchurch until an expected new replacement was delivered. In addition, appliances are temporarily replaced automatically when they are non-operational during overhaul or for any other reason.

Equipment

A continual watch is being maintained on developments in the equipment field and new or improved equipment essential to New Zealand's changing conditions is being introduced as finance permits.

The increase in the use of plastics, pesticides, and industrial chemicals in New Zealand will require a long term programme for increasing the stocks of breathing apparatus and compressors held by the larger districts.

Repairs and Maintenance

The services of the Ministry of Works and Development are used extensively in regard to repairs and maintenance of buildings along with all other works and property matters.

Pressure on brigade workshops continues at a high level. This reflects the problem of having to maintain older vehicles and those accumulating high annual mileages. It also reflects the increasing dependence the smaller

brigades are placing on them as a matter of course. Workshop facilities are varied on a national basis and plans are being prepared to overcome these deficiencies over a period, as finance permits. It will be some years before optimum workshop facilities are reached.

Technical Advisory Committee

The Technical Advisory Committee continues to meet on a regular basis and advises the Commission on appropriate technical matters.

Buildings

Standard design briefs are being developed and the assistance of the Ministry of Works and Development will be sought in producing them in a useful format.

Building projects in progress on 1 April 1976 are continuing as outstanding commitments taken over from former fire authorities, viz:

	$
Palmerston North	2,000,000
Howick	235,000
Gisbourne (re-modelling)	781,000
Bulls	63,000
Ashburton	300,000
Tapanui	72,000

Communications

Prior to nationalisation, the supply of minor alarm receiving systems to volunteer fire brigades depended more on successful salesmanship than on the local needs. Some new receiving equipment was unnecessary. Usually, expensive installations were supplied which could never fulfil their potential. (A system costing $6,000 with a potential for 64 private fire alarms was supplied in one small town with only three connections.)

A national survey was carried out early in 1976 which showed that the Commission's most important telecommunications services are fire alarms, including:

emergency telephone services;
mobile radio communications.

To develop policy on fire alarms, an advisory committee was established under section 12 (1) comprising members of the Fire Service and some co-opted from the industry. The committee has already resolved a number of outstanding problems relating to alarm connections. The advantage has been in the national standardisation of policy.

The Commission is now represented on the Interdepartmental Committee on Fire Alarm Approvals, the purpose of which is to enhance and control fire alarm systems through the publication and support of the New Zealand standard specifications.

The introduction of the emergency (111 dialling) telephone service has not proceeded as speedily as the New Zealand Post Office equipment allows.

Emergency calling has necessitated the nomination of acceptance centres at permanently manned fire stations, together with the provision of telecommunications facilities for call-out of remote fire stations and comprehensive radio cover within the whole area of operational responsibility. In turn, the coverage requirement has shown the inadequacy of the present mobile radio system. A plan for national coverage, with exclusive Fire Service channels in the u.h.f. band is in preparation.

TRAINING

Training Policy

Decentralised basic training, introduced 5 years ago, has worked as well as limited resources would allow; but has been unable to cater fully for the 21 permanent brigades outside the four main centres. More accommodation and staff would be needed. A single national recruit training depot is now favoured, and the Commission has been investigating the possibility of establishing such a depot in the Ardmore/Papakura area. Other departments with fire-fighting responsibilities have also shown interest in joining the Commission in a combined project. Such a centre could be expected to achieve not only economies of scale (in buildings, plant, staff, and logistics) but also a consistent national standard of recruit training and a lively corporate spirit. In the event of a centre being established, its further development to a comprehensive academy could be a sensible measure. Meanwhile, plans to expand the Fire Service College at Island Bay at an estimated cost of $650,000 are in abeyance.

Training Advisory Committee

The Training Advisory Committe carried a heavy workload during the year. On their advice, senior firemen's courses, normally held at the college, were decentralised, allowing more station officers' courses to be run at the college. This is assisting to reduce the backlog of candidates for station officers' courses.

College Courses

The New Zealand Fire Service College received 538 nominations for courses, from which 330 students were selected to attend. (Present residential accommodation caters for only 12 students.)

Overseas Students

Three overseas students attended courses — one from Papua - New Guinea, and two from Fiji. Several requests have been received from overseas for 1977, but accommodation is too limited.

Catering

Some 8602 meals were served at the college during the year (7503 in 1975). Catering was of a high standard.

Mobile Training Unit

The mobile unit for training remote volunteer brigades covered 44 stations in the South Island, but, owing to shortage of National Headquarters staff, was unable to complete the original programme. The unit is currently being manned by local permanent brigade staff on an experimental basis.

Volunteer Officers' Manual

A manual was issued as a training guide for volunteer officers. It is in strong demand and serving a very useful purpose.

College Extension Courses

Rural fire-fighting course	23 attended
Driving instructors' course	12 attended
Volunteer officers', Phase I course	52 attended

Decentralised Training

Courses	Trainees Completing Course			
	Auckland	Wellington	Christchurch	Dunedin
Basic I	38	44	13	25
Basic II	48	39	36	44
Advanced firemen	52	27	28	21
Special firemen	—	—	—	9
Volunteer B.A.	73	12	—	—
Volunteer advanced firemen	6	13	—	—
Volunteer firemen	22	—	133	—
Volunteer pump operators	22	—	—	—
Civil Defence	—	—	90	—
Red Cross	—	—	34	—
DSIR Antarctic Division	—	—	12	—
	261	135	346	99

Ship Fire-fighting Courses

The Commission continues to provide ship fire-fighting courses on request from the Marine Division, Ministry of Transport.

Outward Bound Training

The Commission has decided to become a sponsoring organisation under the Outward Bound Trust of New Zealand and provide limited sponsorship for a maximum of six candidates a year on special outward bound courses for the older age group at the Cobham Outward Bound School, Anakiwa. It is intended that such sponsorships will be equally divided between volunteer and permanent personnel. Experience on the course should be beneficial to potential leaders in the service.

Defensive Driving

The Commission supports the aims, objects, and principles of the Defensive Driving Council and has approved defensive driving courses being conducted at brigade level as an adjunct to normal in-service training.

New Zealand Fire Training and Research Foundation

A Fire Commissioner is a trustee of the foundation, which sponsors Fire Service personnel on appropriate scholarships overseas and within New Zealand as far as funds will allow.

New Zealand Fire Service Commission Scholarships

Fire Force Commander W. Clarkson, Commander No. 2 Region, and Fire Force Commander B. F. Hyland, Commander No. 5 Region, attended a senior officers' command course at the United Kingdom Fire Service College at Dorking and Moreton-in-Marsh during the year.

Fire Force Commander P. H. Douche, Commander No. 3 Region, and D. A. Varley, Commander No. 4 Region, have been nominated for a similar course in the middle of 1977.

Appreciation

The Commission wishes to thank the following organisations for rendering assistance on training matters during the year: Victoria University, Wellington Polytechnic, Union Steam Ship Company, Peninsular and Orient Line, Crash Fire Department, Department of Scientific and Industrial Research, Ministry of Works and Development, Civil Defence, Building Research Association of New Zealand, Ministry of Defence, Police Department, New Zealand Post Office, Wormald Vigilant, Freightways Bulk Services, Ministry of Transport.

FIRE SAFETY

Part II of the Fire Service Act 1975

A comprehensive review has highlighted the magnitude of the task facing the Commission in activating Part II of the Act.

Fire safety officers at present inspect some 19 000 buildings annually for licence purposes in places of assembly, accommodation, and licensed premises occupancies. Incomplete returns from a building census indicate the Commission is to be concerned with 32 types of occupancy totalling over 125 000 buildings. To progressively bring these additional buildings within the Commission's jurisdiction will mean some rescheduling of present inspections from annual to bi-annual or even tri-annual, and will require other measures as well.

Fire safety provisions are contained or referred to in 14 Acts and five sets of regulations. Uniformity of fire safety law and practice will eventuate only when it is consolidated into one statute. The commission advocates this objective.

Fire Safety Advisory Committee

To give effect to the provisions of Part II of the Fire Service Act, the Commission has appointed a Fire Safety Advisory Committee comprising a Fire Commissioner as chairman, Director of Fire Safety as deputy chairman and representatives from:

Accident Compensation Commission;
Building Research Association of New Zealand;
Department of Internal Affairs (Chief Inspector of Explosives);
Fire Protection Industry;
Insurance Industry Council of New Zealand;
New Zealand Institute of Architects;
New Zealand Institution of Engineers;
New Zealand Master Builders' Federation Inc.;
Standards Association of New Zealand;
Territorial Local Government Council.

The committee's terms of reference are generally to act in an advisory capacity to the Commission on its functions under section 21 (1) of the Act. An initial exploratory meeting was held in March 1977.

Fire Safety Development Officer

To ensure maximum progress with the implementation of Part II of the Act, a fire safety development officer is being added to the staff of the Fire Service Division. He will devote full time to this project and also be secretary to the Fire Safety Advisory Committee.

New Zealand Standard 1900, Chapter 5

Revision of chapter 5 by the Standards Association is not now expected to be ready for public comment before November 1978. Meanwhile the association intends to issue an interim partial amendment to chapter 5 by the end of 1977, giving support to Commission's policy of advocating further credits in the design and construction of buildings where automatic sprinkers are installed and enabling the Commission, with the co-operation of local authorities, to give greater impetus to the upgrading of fire safety standards in existing buildings. The Commission has also sought urgency from the Standards Association on the reduction of the height at which automatic sprinkers are mandatorily installed — from 45 m to 25 m.

Committee Representatives

The Commission has been represented by fire safety officers on the following committees of the Standards Association:

Code of Practice for the Design of Facilities for the Meat Industry with respect to Fire.
Emergency Electricity Supply Committee.
Fire Extinguisher.
Hose Reels.
Incinerators.
Automatic Sprinkers — Revision of Existing Standard NZS 4541P.
Fire Protection Sectional Committee.

Sprott House Report

All the unactioned recommendations of the 1970 inquiry have been incorporated in the terms of reference of the Fire Safety Advisory Committee. Progress on the recommendations to date has been limited to the formation of a fire safety inspectorate, appointment of a Director of Fire Safety, training of fire safety officers, and 1971 legislation requiring all local authorities to adopt fire safety bylaws.

Fire Safety Display Trailers

Fire safety publicity was given increased stimulus by the introduction of a fire safety display trailer constructed to the initial design of a Wellington Polytechnic student, the winner of a design competition sponsored by the Commission. The unit is fitted with fixed display panels and provides audio and visual display by means of film and slide projectors. Following a tour of the South Island "shows" in November and brief usage in the Wellington area it was allocated for use in the South Island. A second trailer unit is under construction.

Building Research Association of New Zealand

The Director of Fire Safety represented the Commission on the Fire Advisory Committee of the Building Research Association of New Zealand.

A fire data collection project is in operation in conjunction with B.R.A.N.Z. Fire visit survey forms prepared by fire research staff of B.R.A.N.Z. are completed by fire safety officers on a selected range of fires. B.R.A.N.Z. staff attend fires in the Wellington area and, if of sufficient significance, fires in other parts of New Zealand.

The project has as its objectives the collection and analysis of data on fire, investigation of the performance of fire protection provisions, and providing B.R.A.N.Z. with basic data and evidence for research needs and priorities.

General Research

A case against the provision of only one means of escape in multi-storey buildings was the subject of a research project undertaken by staff officers at national headquarters for submission to the revision committee of the Standards Association.

An analysis of the 68 fires in licensed hotels in 1975 was undertaken by a staff officer and made the subject of a report which was released to all fire safety departments, the Licensing Control Commission, and the Hotel Association of New Zealand. An in-depth study of fire injuries for the 1975 year was also carried out.

Regulations Instead of Bylaws

The Commission strongly advocates (as did the "Sprott House" Committee of Inquiry) that local authority bylaws on fire safety be replaced by statutory regulations. Bylaws are said to be easier to alter, but the contrary is probably the case. Legislation in 1971 required all local authorities to make fire safety bylaws (subject to ministerial approval) by 31 March 1973. At that date 238 had not complied. Now there are two in default. The power to make regulations where no bylaws were submitted by 31 March 1973 has not been used. Other building matters where life is at hazard are dealt with by regulations — for example: electrical wiring, plumbing and drainage, scaffolding, and construction. Fire safety is usually covered by Government regulations overseas.

The Commission's view is also supported by the New Zealand branch of the Institution of Fire Engineers.

Fire Safety Statistics

Fire safety statistics are provided in appendices to this report.

REPORT OF THE AUDIT OFFICE

To the chairman and members of the Fire Service Commission:

The Audit Office, acting under statutory authority, has audited the accounts of the Fire Service Commission for the year ended 31 March 1977.

The audit included such reviews of the accounting procedures and tests of the accounting records and other supporting evidence as were considered necessary in terms of section 20, Public Revenues Act 1953. All the information and explanations required have been obtained. The financial transactions which have come under notice have been within statutory authority.

In the opinion of the Audit Office the attached balance sheet and accompanying accounts give a true and fair view of the state of affairs of the Commission as at 31 March 1977 and of the results of the financial operations for the year.

J. T. CHAPMAN,
Assistant Controller and Auditor-General.

6 September 1977.

NEW ZEALAND FIRE SERVICE COMMISSION

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31 MARCH 1977

	$000
Salaries and wages (note 2)	20,868
Other staff costs (note 3)	2,394
Operating expenses (note 4)	1,651
Occupation expenses	815
Administration and other expenses (excluding salaries) (note 5)	1,223
Net financing charges	676
Total revenue expenses	27,627
Loss on sale of fixed assets	22
Surplus transferred to Appropriation Account	5,149
	$32,798

	$000
Government contributions	8,250
Insurance company contributions and levies	24,014
Other income	534
	$32,798

APPROPRIATION ACCOUNT

	$000
Allocations to —	
Reserve fund (note 6)	617
Sinking fund (note 6)	155
Gratuity fund (note 6)	147
Balance 31/3/77	4,550
	$5,469

	$000
Surplus as per income and expenditure account	5,149
Reserve Fund withdrawals for purchase of assets (note 6)	255
Sinking fund withdrawals (note 6)	38
Gratuity fund withdrawals (note 6)	27
	$5,469

NEW ZEALAND FIRE SERVICE COMMISSION

BALANCE SHEET AS AT 31 MARCH 1977

	$000	$000
Capital and reserves —		
Capital account	25,027	
Appropriation account	4,550	
Reserve fund (note 6)	2,228	
Sinking fund (note 6)	739	
Gratuity fund (note 6)	304	
Trust fund (note 6)	4	
Total capital and reserves		32,852
Term liabilities —		
Loans (note 8)		12,081

BALANCE SHEET AS AT 31 MARCH 1977 — *continued*

	$000	$000
Current liabilities —		
Short-term loan (BNZ)	232	
Bank current account	577	
Sundry creditors and accruals (note 10)	1,306	
Total current liabilities		2,115
		$47,048
	$000	$000
Fixed assets (note 11) —		
Land and buildings	21,245	
Fire appliances	10,231	
Other vehicles	617	
Communications equipment	1,014	
Plant and equipment	3,817	
Office furniture and equipment	528	
Total fixed assets		37,452
Investments (note 6) —		
Reserve fund	2,228	
Sinking fund	739	
Gratuity fund	304	
Trust fund	4	
Current account investments	49	
Total investments		3,324
Current assets —		
Short-term deposit of current account (note 12)	4,947	
Loan funds (note 13)	646	
Sundry debtors and accruals (note 14)	222	
Stock on hand	457	
Total current assets		6,272
		$47,048

J. K. HUNN, Chairman.
A. H. VERHOEVEN, Controller of Finance.

NOTES TO FINANCIAL STATEMENTS

NOTE 1—STATEMENT OF ACCOUNTING POLICIES

(a) General accounting principles: The general accounting principles of the New Zealand Society of Accountants so far as these are applicable to local authorities have been followed, with the exception that no depreciation has been written off or set aside for the financial year and that assets have been included on the basis set out in (c) below. The historical cost concept has been applied.

(b) Incorporation of accounts of former fire authorities: The Commission's balance sheet includes the assets and liabilities of former fire authorities as at 31 March 1976. These have been incorporated from draft accounts where audited accounts were not available.

(c) Valuation of fixed assets: Fixed assets purchased since establishment of the Commission on 1 April 1976 have been valued at cost. Those held by fire authorities at 31 March 1976 were included at values appearing in the authorities' final balance sheets at that date.

(d) Investments: Investments have been valued at cost or transfer value at 31 March 1976, plus interest which is capitalised each year.

(e) Comparative figures: Figures for the financial year ended 31 March 1976 are not included in the annual accounts because 1976—77 was the initial year of the Fire Service Commission.

NOTE 2 — SALARIES AND WAGES

	$
1. Includes the remuneration of civilian and uniform personnel.	
2. Normal time payments	19 398 000
Overtime payments	1 470 000
	$20 868 000

NOTE 3 — OTHER STAFF COSTS

Superannuation	906 000
Uniforms	553 000
Social club grants	291 000
Travelling expenses	231 000
Other	413 000
	$2 394 000

NOTE 4 — OPERATING EXPENSES

Repairs and maintenance of vehicles and equipment	606 000
Hose and hose fittings	329 000
Fuel and lubricants	273 000
Other	443 000
	$1 651 000

NOTE 5 — ADMINISTRATION AND OTHER EXPENSES (Excluding Salaries)

Audit Fee	15 000
Telephone rentals	276 000
Rates	221 000
Insurance	171 000
Printing and stationery	137 000
Other	403 000
	$1 223 000

NOTE 6 — SCHEDULE OF RESERVES AND INVESTMENTS

	Balances taken over	Funds invested 1976—77	Funds withdrawn 1976—77	Interest received 1976—77	Balances as at 31 March 1977	Balance as per balance sheet as at 31 March 1977
	$000	$000	$000	$000	$000	$000
Reserve Fund Total	1 778	617	255	88	2 228	2 228
Invested as follows:						
National Provident Fund	1 047	617	255	48 (note 7)	1 457	
Public Trustee	694			38	732	
Other	37			2 (note 7)	39	
Sinking Fund Total	590	155	38	32	739	739
Invested as follows:						
National Provident Fund	331	74	25	16 (note 7)	396	
Public Trustee	221	57	13	14	279	
Other	38	24		2 (note 7)	64	
Gratuity Fund Total	175	147	27	9	304	304
Invested as follows:						
National Provident Fund	117	147	27	6 (note 7)	243	
Public Trustee	57			3	60	
Other	1				1	
Trust Fund	4				4	4
Other Investments Total	76		27		49	49

Invested as follows:						
National Provident Fund	25		Nil		25	
Other	51		27		24	
Total investments	$2 623	$919	$347	$129	$3 324	$3 324

NOTE 7

The National Provident Fund Board normally advises the amount of interest received on investments held on behalf of investors during each financial year and particulars of total investments held at 31 March. Because this information is not available for the 1976—77 financial year, interest has been included in those accounts at an assessed rate of 5 percent on the National Provident Fund investment balances taken over.

NOTE 8 — STATEMENT OF PUBLIC DEBT AS AT 31 MARCH 1977

Maturity dates	Range of Interest Rates	Amount of Loan	Balance Outstanding 31/3/76	Amount Raised During Year	Amount Repaid During Year	Balance Outstanding as at 31/3/77	Accumulated Sinking Funds
	%	$	$	$	$	$	$
Less than one year	3.25 —6		587 100.42		161 374.75	425 725.67	
1 year and less than 2 years	4 —6		270 219.00		45 896.68	224 322.32	
2 years and less than 3 years	3.25 —6.25		624 559.65		32 148.76	592 410.89	
3 years and less than 4 years	3.25 —6.25		342 911.81		31 343.58	311 568.23	
4 years and less than 5 years	3.25 —6.25		549 894.23		36 449.53	513 444.70	
5 years but less than 10 years	4 —9.5	474 400.00	3 484 471.36	474 400.00	136 036.12	3 822 835.24	
10 years but less than 15 years	4.875 —9.5	288 000.00	1 009,620.24	288 000.00	48 155.60	1 249 464.64	
15 years but less than 20 years	5 —9.5	100 500.00	1 082 476.40	100 500.00	23 166.68	1 159 809.72	
20 years or more after balance date	6 —9.5	714 100.00	3 174 273.28	714 100.00	107 058.64	3 781 314.64	
		1 577 000.00	11 125 526.39	1 577 000.00	621 630.34	12 080 896.05	*739 188.29

*Note 9

NOTE 9 — SINKING FUNDS

A breakdown of the periods to which the sinking funds relate could not be readily determined due to a lack of information available to date.

NOTE 10 — SUNDRY CREDITORS AND ACCRUALS

	$
Sundry creditors	607 000
Wages accrued	535 000
Interest accrued	164,000
	$1 306 000

NOTE 11 — SCHEDULE OF FIXED ASSET MOVEMENTS FOR THE YEAR ENDED 31 MARCH 1977

	Assets Taken Over (i)	Purchases 1976—77 (ii)	Disposals 1976—77	Balances as at 31 March 77
	$000	$000	$000	$000
Land and buildings	19 386	1 905	46	21 245
Fire appliances	9 446	787	2	10 231
Other vehicles	597	20	Nil	617
Communications equipment	676	338	Nil	1 014
Plant and equipment	3 610	207	Nil	3 817
Office furniture and equipment	456	77	5	528
	$34 171	$3 334	$53	$37 452

NOTE — (i) Valued at transfer value as per balance sheets of the respective fire authorities.
(ii) Valued at cost.

NOTE 12 — SHORT TERM DEPOSITS OF CURRENT ACCOUNT FUNDS

Bank of New Zealand	4 100 000
National Provident Fund	847 000
	$4 947 000

NOTE 13 — LOAN FUNDS

Bank of New Zealand	250 000
National Provident Fund	380 000
Other	16 000
	$646 000

NOTE 14 — SUNDRY DEBTORS AND ACCRUALS

Sundry debtors	140 000
Insurance contributions due	51 000
Funds due from local authorities for cash balances of fire authorities taken over	31 000
	$222 000

STATEMENT OF SOURCE AND APPLICATION OF FUNDS FOR THE YEAR ENDED 31 MARCH 1977

	$	$000
Funds were available from —		
Surplus on operations		5 149
Loss on sale of fixed assets (note iii)		22
Interest on investments (note iv)		129
		5 300
Loan funds raised		1 577
Sale of fixed assets		31
Withdrawal of investments —		
Reserve fund	255	
Sinking fund	38	
Gratuity fund	27	
Other	27	347
		$7 255
These funds were used for —		
Loan repayments		622
Purchase of fixed assets (note ii)		3 334
Investment in —		
Reserve fund	705	
Sinking fund	187	
Gratuity fund	156	1 048
Net increase in working capital		2 251
		$7 255

NOTE — (iii)Adjustment for non-cash items.
(iv)Interest received on special accounts not included in Income and Expenditure Account.

SUPPLEMENTARY FINANCIAL STATEMENT (NOT SUBJECT TO AUDIT)
SUMMARY OF BUDGETS FOR 1976—77 AND 1977—78

	1976—77 $(000)	1977—78 (draft) $(000)
Revenue —		
Insurance industry contributions	15 270	18 630
Insurance industry levy	6 436	9 150
Government contribution	7 755	7 000
Sundry receipts	515	400
Transitional revenue	1 500	Nil
Uncommitted surplus		3 750
Total	$31 476	$38 930
Expenditure —		
Permanent brigades	24 330	27 560
Volunteer brigades	1 890	2 550
National headquarters	2 006	2 670
Financing costs	1 500	2 400
Contributions		
(a) Reserves	200	400
(b) Gratuity fund	150	100
Capital expenditure from revenue	1 400	3 250
Total	$31 476	$38 930

APPENDIX 1—FIRE STATISTICS

This section covers the period 1 January to 31 December 1976 and the tables are compiled from the examination of fire reports received from fire districts.

Table I — Analysis of Calls

	1974	1975	1976
False alarms, non-malicious	3 415	3 982	3 653
False alarms, malicious	2 314	2 094	2 070
Accidental	2 003	2 107	2 504
Defective apparatus	3 491	4084	4 998
Total all false alarms	11 223	12 267	13 225
Special services	5 342	6 011	5 969
Chimney fires	2 420	2 234	2 844
Gorse, grass, rubbish	8 593	7 603	6 911
Property fires	10 068	10 465	9 932
Assistance calls to property fires	218	788	374
Total all calls	37,864	39,368	39,255

NOTE: Assistance calls to property fires have not been included in previous reports.

Table II— Analysis of Property Involved

	1974	1975	1976
Dwellings —			
Apartment houses	1	10	7
Barracks, armed services	5	6	4
Barracks, police	—	2	—
Boarding houses	20	32	29
Cabins, holiday	1	15	29
Caravans	6	32	17
Children's homes	10	11	2
Convalescent homes	5	3	1
Hospitals, public	72	66	55
Hospitals, private	8	9	13
Hospitals, mental	16	35	35
Huts, construction	3	1	5
Maternity homes	1	—	3
Mental hospital villas	2	5	4
Nurses' homes	16	15	11
Old people's homes	3	15	8
Hostels	24	27	18
Hotels, licensed	45	68	72
Hotels, unlicensed	11	6	6
Motels	20	19	20
Motor camps	—	1	1
Private clubs	1	3	1
Private dwellings	3 265	3 619	3 602
Private detached buildings	687	572	710
Police cells	2	1	—
Prisons, borstals, detention centres	9	7	3
Residential flats	475	472	502
Tents	1	4	1
Fire stations (residential sections of)	1	1	—
Camping ground buildings	—	1	—
Buildings being demolished	—	15	7
Buildings under construction	—	26	17
Others	7	33	58
	4 717	5 132	5 241

Table II — Analysis of Property Involved — continued

	1974	1975	1976
Places of public assembly —			
Art galleries	1	—	1
Billiard saloons	—	—	—
Bowling club pavilions	5	—	2
Cricket club pavilions	1	—	—
Cinemas and theatres	1	9	11
Clubs, non-residential	27	28	14
Churches	13	13	14
Church halls	6	16	6
Cabarets	—	3	1
Dance halls	1	2	4
Golf club houses	—	—	—
Grandstands	8	4	7
Gymnasiums	2	2	1
Kindergartens	1	5	5
Libraries	4	3	4
Lodge buildings	—	2	2
Public halls	12	7	16
Scout dens	5	11	5
Schools, primary	37	43	50
Schools, intermediate	9	5	11
Schools, high	21	21	29
Schools, assembly halls	1	4	2
Sports buildings	3	26	14
Showground buildings	—	5	3
Racecourse buildings	3	2	3
Universities	16	10	12
Museums	—	—	1
Schools, special	—	5	—
Miscellaneous places of assembly	46	43	65
	219	269	283
Shops and offices —			
Auctioneers	—	—	—
Banks	4	2	8
Bakers	9	7	15
Booksellers and stationery	2	2	7
Bicycle	1	3	—
Butchers	14	23	19
Camera	—	1	—
China, glass, crockery	—	—	—
Chemists	5	4	3
Coffee lounges	10	6	6
Confectioners	—	2	—
Car, truck, tractor sales	10	6	1
Commercial offices	1	16	13
Clothing	—	10	11
Dairies	15	29	8
Delicatessens	4	2	1
Departmental stores	10	9	13
Doctors consulting rooms	2	1	3
Drapers	4	3	—
Electrical — not home appliances	5	3	—
Footwear	1	7	5
Fruit and vegetables	2	5	4
Farm implements	—	1	4
Furniture	3	12	7
Fish and chips	61	5	33
General stores	2	10	4
Government department buildings	2	6	15
Groceries	12	12	18
Hardware	2	3	8
Hairdressers	2	3	5

Table II — Analysis of Property Involved — continued

	1974	1975	1976
Shops and offices—*continued*			
Home appliances	—	2	1
Jewellers and watchmakers	1	3	2
Local authority offices	—	8	1
Milk bars	3	8	1
Motor trade spares	—	5	2
Multiple office buildings	37	37	38
Multiple stores	44	34	17
Paint, wallpaper, etc	3	—	2
Petrol service stations	12	22	1
Post offices	11	10	6
Restaurants, licensed	10	6	9
Restaurants, unlicensed	24	21	20
Radio and television studios	1	1	3
Sports goods	2	—	2
Supermarkets	9	18	10
Seed merchants	1	—	—
Take-away food bars	—	39	31
Taverns, licensed	4	2	2
Travel agents	1	1	—
Boat sales	—	2	—
Computer centres	—	—	—
Tobacconists	—	—	—
Miscellaneous shops and offices	106	62	62
	452	477	417
Manufacturing and industrial —			
Abattoirs	4	—	4
Aerated water and cordial	1	—	2
Bakeries	13	11	3
Basketry	—	—	—
Bedding	1	—	1
Biscuit	4	5	2
Bitumen, asphalt, and tar plants	11	10	2
Boat building	2	5	3
Book-binders and stationers	—	1	2
Breweries and distilleries	3	4	2
Brush	—	2	—
Brick, tile, pottery	2	7	6
Building trade (carpentry and joinery)	38	57	48
Canvas goods	—	—	1
Carpet	4	10	14
Cement works	1	3	7
Cosmetic manufacturing	—	1	1
Clothing manufacturing	11	12	4
Container manufacturing	1	5	4
Chemicals, industrial	6	4	7
Chemical, fine and drugs	1	2	—
Concrete, concrete blocks, etc	2	2	3
Dairy products	14	21	13
Decorative signs, etc	—	1	—
Dyeing and dry cleaning	6	8	5
Electrical equipment (domestic, T.V., radio)	13	10	12
Electrical equipment (commercial)	—	9	13
Engineering works	34	34	32
Fertiliser works	7	19	6
Foam rubber	1	—	2
Foundries	10	11	10
Fish processing	3	1	4
Flock and felt	1	—	—
Flour and cereals	5	7	8
Food processing (not jams and sweets)	15	15	11
Freezing works	19	17	14

Table II — Analysis of Property Involved — continued

	1974	1975	1976
Manufacturing and industrial—*continued*			
Footwear, manufacture and repairs	7	5	7
Furniture and upholstery	34	24	13
Gas and by-products	4	10	6
Glass works	6	4	7
Hardware	—	—	3
Jams and sweets	1	3	1
Jewellery manufacturing	1	—	1
Kiln drying (timber)	6	1	—
Laboratories	—	8	6
Laundries	7	6	9
Leather goods	4	2	10
Metal processing	10	22	25
Mining, quarrying, etc.	2	—	1
Motor vehicle assembly	15	21	22
Motor vehicle, servicing, garages etc.	8	22	53
Motor vehicle repairs, panel beaters	14	6	15
Oil refineries	1	—	6
Ore extraction	—	—	1
Paint, varnish etc.	7	10	7
Petrol, oil grease, etc.	—	1	1
Plaster works	—	—	—
Plastic industry	8	13	16
Pulp and paper	88	119	69
Printing works (including newspapers)	26	12	17
Painting, spray	3	4	9
Plumbers manufacturing	2	—	—
Refrigeration engineers and manufacturing	1	5	1
Rope works	2	2	—
Rubber goods, not tyres	2	6	3
Sawmills and timber mills	33	66	111
Ship repair workshops	—	—	—
Soap manufacturing	3	3	1
Stables	—	—	1
Seeds	1	2	1
Shingle plants	—	—	4
Steel mills	13	13	14
Tobacco products	6	5	3
Textiles (not wool)	1	1	2
Timber impregnation	4	—	3
Toys	1	4	4
Tyre manufacturing and retreading	9	5	7
Undertakers(joinery sections of)	—	—	—
Wallboard	2	72	50
Welding plants	—	3	1
Woollen mills	—	—	—
Wire goods	—	4	5
Boiling down works	—	1	—
Miscellaneous manufacturing and industrial	261	115	166
	826	892	928
Bulk stores and warehouses —			
Cool stores	2	3	1
Chemicals, industrial	—	6	2
Chemicals, fine and drugs	1	1	—
Coal	2	2	2
Clothing	1	5	—
Footwear	—	—	—
Furniture	3	3	3
General merchants	1	7	1
Groceries	2	1	1
Grain stores	6	10	—
Hardware, crockery, glass, etc	—	1	1
Hide and skin	—	—	—

Table II — Analysis of Property Involved — continued

	1974	1975	1976
Bulk stores and warehouses—*continued*			
Machinery	—	4	1
Medical and surgical equipment supplies	—	—	1
Metal, iron, steel, etc.	1	2	2
Paints, varnishes	—	3	—
Paper stores	2	2	2
Petrol and oil bulk storage	—	2	1
Railway department stores	7	1	—
Rubber stores	—	—	1
Timber yards	11	11	1
Wine and spirits, bond and bulk stores	4	1	1
Wharf stores	2	2	1
Wool stores	2	5	—
Chemist supply stores	—	2	—
Stock feed	—	1	—
Miscellaneous	44	50	10
	—	—	—
	91	125	32
Road, rail, marine and air —			
Cars, private	1 684	1 736	1 613
Cars, public, taxis, etc.	4	4	2
Cars, wrecked	—	11	12
Cranes, fixed	—	1	2
Cranes, mobile	—	8	7
Earthmoving machinery	31	47	35
Ferries, roll on	—	—	—
Hay balers	1	2	4
Locomotives, diesel and electric	5	1	3
Motor cycles and scooters	133	107	85
Passenger transport vehicles (buses, etc)	24	19	34
Roadmaking machinery	4	1	10
Railcars	—	1	2
Railway carriages	4	2	2
Railway wagons	14	13	14
Tractors, miscellaneous usage	66	44	57
Trucks	243	143	99
Trailers (not residential caravans)	19	30	11
Ships, passenger and cargo	9	15	8
Launches	15	25	14
Barges	—	1	—
Yachts	2	1	4
Dinghies	1	4	4
Fishing, various	—	9	1
Aircraft, passenger	—	2	3
Aircraft, topdressing	1	3	—
Aircraft, military	—	—	—
Aircraft, freight	—	—	—
Motor mowers	16	20	28
Fire appliances	—	1	1
Tugs	1	—	—
Floating cranes	1	—	—
Vans	—	47	83
Road tankers, fuels	—	7	6
Road tankers, bulk various	—	3	1
Miscellaneous	61	44	79
	2 339	2 352	2324
Agricultural buildings and other property —			
Agricultural department, research buildings	2	2	6
Drying sheds	1	—	—
Dwellings, farm	16	20	8
Farm buildings, not dwellings	26	39	16
Farm equipment	1	17	—

Table II — Analysis of Property Involved — continued

	1974	1975	1976
Agricultural buildings and other property—*continued*			
Haystacks	1	19	5
Implement sheds	24	47	16
Market gardens	—	1	—
Nurseries, including packing sheds	2	2	—
Piggeries	4	5	10
Poultry houses	6	6	4
Stables	—	3	1
Shearing sheds	4	4	6
State forests	1	2	1
Private plantations	34	32	18
Bush native	2	3	—
Standing crops	12	4	3
Hay barns	68	78	96
Miscellaneous agricultural property	5	20	34
	209	304	224
Miscellaneous buildings —			
Airport control towers	—	1	2
Airport hangars	2	1	2
Builders sheds	9	19	10
Passenger terminals	5	—	4
Post office workshops	—	2	3
Power distribution — sub-stations	2	13	14
Power distribution — transformers, poles etc.	129	136	111
Power distribution — coal fired	—	—	1
Power distribution — gas fired	—	—	3
Power stations, hydro	—	—	—
Power stations, oil/gas fired	—	2	—
Railway goods sheds	—	—	—
Railway stations	9	9	7
Railway signal boxes	4	2	3
Railway technical buildings	—	2	5
Road transport stores	—	2	—
Telephone exchanges	1	7	4
Radio and T.V. transmitters	—	1	—
Other miscellaneous buildings	43	36	85
	204	233	254
Miscellaneous —			
Gas meters	—	—	3
Bridges	14	14	9
Rubbish skips	—	7	9
Fences and hedges	282	116	86
Railway sleepers	7	11	8
Stacked timber, boxes, etc.	—	6	—
Street and traffic lights	—	6	7
Wharves	15	23	23
Not otherwise provided for	—	44	76
	318	227	221

Table III — Control of Fires

(a) Fire in buildings confined to —

	1974		1975		1976	
	Total	Percent	Total	Percent	Total	Percent
One room	4 263	64.7	3 957	59.3	4 934	64.9
One floor	117	1.8	164	2.5	100	1.3
Single occupancy	153	2.3	304	4.6	630	8.3
Single building	1 980	30.1	2 143	32.1	1 885	24.8
Range of buildings	75	1.1	105	1.6	58	0.8
	6 588		6 673		7 607	

Table III—Control of Fires—continued

	1974 Total	1974 Percent	1975 Total	1975 Percent	1976 Total	1976 Percent
(b) Degree of physical damage to property —						
0 percent to 10 percent	7 384	73.3	7 820	74.7	7 170	72.2
11 percent to 20 percent	652	6.5	655	6.3	673	6.8
21 percent to 30 percent	359	3.6	360	3.4	362	3.6
31 percent to 40 percent	220	2.2	205	2.0	219	2.2
41 percent to 50 percent	234	2.3	212	2.0	203	2.0
51 percent to 60 percent	135	1.3	142	1.3	155	1.6
61 percent to 70 percent	104	1.0	95	1.0	118	1.2
71 percent to 80 percent	176	1.7	170	1.6	174	1.8
81 percent to 90 percent	208	2.1	209	2.0	209	2.1
91 percent to 100 percent	596	5.9	597	5.7	649	6.5
	10 068		10 465		9 932	

Table IV: Location of Fires and Co-ordination Between Brigades

	1974	1975	1976
(a) Location of fires:			
In fire district	17 775	16 515	14 700
In protected area	2 380	3 749	3 755
Beyond protected area	906	1 256	1 232
	21 061	21 520	19 687
(b) Number of fires to which reinforcements were called from other brigades —	218	788	374

Table V: Casualties

	1974	1975	1976
(a) Deaths of members of the public in fires attended by a fire brigade —			
Men	20	19	17
Women	9	13	15
Children	3	8	6
	32	40	38
(b) Deaths of members of the public in fires to which a fire brigade was not called —			
Men	4	12	8
Women	1	4	1
Children	1	3	—
	6	19	9
(c) Casualties to members of fire brigades —			
Deaths	—	—	—
Injuries, (burns, cuts, fractures, overcome by fumes, etc)	107	134	113
(d) Members of the public suffering injuries at fires attended by a fire brigade	146	177	123
(e) Rescues —			
Adults	6	34	43
Children	2	2	35
Motor vehicle accidents	—	88	143
Other	—	17	—
	8	141	221

Table VI — Property Fires Involving Loss of Life

	1974	1975	1976
(a) Property in which fatalities occurred—			
Private dwellings	20	30	32
Residential flats	—	7	2
Hotels	—	—	2
Detention centres and cells	—	—	—

Table VI — Property Fires Involving Loss of Life — continued

	1974	1975	1976
(a) Property in which fatalities occurred—*continued*			
Caravan	1	2	2
Huts, sheds, and barns	2	2	2
Private cars	6	9	1
Aircraft	—	2	—
Farmhouse	—	—	4
Ship	—	—	—
Industrial	—	—	1
Open air	1	2	1
Shops	2	—	—
Factories	6	—	—
Boarding houses	—	1	—
To be confirmed	—	4	—
	—	—	—
	38	59	47
(b) Supposed cause of fires resulting in fatalities —			
Smoking in bed	3	1	7
Careless disposal of smoking materials	5	8	7
Children playing with matches	1	3	—
Cars igniting as result of accidents	4	9	1
Aircraft igniting after crash	—	2	—
Electric blankets	—	2	1
Electric heaters igniting clothing	3	1	2
Electric heaters igniting room contents	2	5	1
L.P.G. in caravan ignited by lighted match	—	—	—
Deliberately lit	—	1	2
Unknown	7	14	16
Open fire in caravan	2	—	—
Ignition of petrol vapour	1	—	—
Saucepan on stove	1	2	1
Water heaters	1	—	—
Explosions	8	1	—
L.P.G. in caravan ignited by electric heater	—	2	—
Electric frypans	—	1	—
Clothes dryer	—	1	—
Candle	—	1	1
Faulty wiring igniting wall	—	—	1
Electric light globe fracture	—	—	1
Sparks igniting clothing	—	—	2
Spark from open fire	—	1	—
Conducted heat from electric light	—	1	—
Electric ranges	—	1	—
Electric ranges igniting clothing	—	1	—
Rubbish fires	—	1	—
Suspicious	—	—	4
	—	—	—
	38	59	47

Table VII — Causes of Property Fires

Gas —	1974	1975	1976
Town gas leaks, domestic	11	16	12
Town gas leaks, other	4	6	6
Bottled gas, domestic	6	9	4
Bottled gas, other	3	11	8
Welding and cutting plants	254	278	378
Fires from town's gas rings and cookers	7	11	13
Explosions, other	6	3	2
Generator, fixed or portable	—	2	1
Explosions, sewer, ducts, etc	—	1	—
Gas, not otherwise provided for	16	39	33
	307	376	457
Electricity —			
Defective installations, domestic	6	86	82
Defective appliances, domestic	17	33	17

Table VII — Causes of Property Fires — continued

	1974	1975	1976
Electricity—*continued*			
Defective installations, other	7	81	87
Defective appliances, radio, T.V.	135	141	141
Welding, electric	71	29	11
Electric motors	92	56	81
Overload and short circuits	513	450	409
Others, careless use	8	37	10
Static electricity	2	5	2
Lightning	3	12	—
Electric blankets	102	146	165
Short circuits caused by storm damage	11	15	13
	967	1 091	1 018
Lighting —			
Electric, ordinary filament	15	6	21
Electric, fluorescent	47	48	38
Electric, luminous discharge	3	9	2
Electricity, not otherwise provided for	22	13	63
	87	76	124
Lighting, other than electric —			
Spirit	—	2	5
Candles	16	36	33
Kerosene	5	14	44
Other	1	10	25
	22	62	107
Smoking and naked lights —			
Bonfires igniting property	2	3	—
Blowlamps	58	46	17
Smoking in bed	118	69	97
Careless disposal of smoking materials	646	662	670
Careless disposal of lighted matches	27	36	30
Children playing with matches	421	391	446
Fireworks	86	81	71
Incinerators and rubbish fires	244	186	166
Burning off out of control	19	32	15
Hot ashes	258	258	291
Sparks from locomotive	—	3	3
Sparks from other than from locomotive	134	110	226
Sparks due to friction	9	38	2
Not otherwise provided for	27	43	57
	2 049	1 958	2 091
Domestic —			
Airing clothes	20	27	28
Heating appliances, portable overturned	20	38	33
Heating applicances, placed too close to	111	104	132
Heating applicances, other	8	41	26
Washhouse boilers, sparks, embers	—	5	1
Washhouse boilers, defective construction or installation	—	11	1
Irons left unattended	7	9	6
Ovens	1 285	1 527	1 398
Refrigerators	26	31	22
Washing machines	43	68	62
Drying cabinets	39	36	29
Not otherwise provided for	30	52	106
	1 589	1 949	1 844
Motor vehicles —			
Petrol leaking and igniting on hot motor	426	407	454
Engine backfire igniting petrol	179	175	86
Electric short circuit igniting petrol	799	766	858

Table VII — Causes of Property Fires — continued

	1974	1975	1976
Motor vehicles—*continued*			
Combustible material placed over engine	32	26	31
Collision or other accident	137	113	88
Filling fuel tank with motor running	10	8	25
Not otherwise provided for	162	253	238
	1 745	1 748	1 780
Heating: Solid fuel burning			
Sparks and embers from open fire	57	80	53
Timber under hearth	42	51	52
Space and water heaters, defective installation	40	72	17
Other defective installations	121	27	39
	260	230	161
Oil-burning space and water heating —			
Fault in burner	30	12	43
Leakage of fuel ignited	71	53	69
Failure of automatic safety device	20	9	10
Defective installation	11	35	26
Heating not otherwise provided for	37	27	40
	169	136	188
Flammable liquids—			
Kerosene heaters	44	56	34
Leakage	13	6	10
Careless use of	49	60	46
Incorrect type of fuel	2	2	1
Not otherwise provided for	11	19	21
White spirit heaters	1	2	1
Oil heaters	1	—	3
	121	145	116
Industrial and commercial —			
Boilers, tar and bitumen	5	16	8
Boilers, chemical and refinery	—	2	—
Boilers, steam, and water heating	6	16	7
Drying ovens	28	71	49
Bakery ovens	10	9	9
Frying ranges	70	58	43
Flues and ducts	2	55	131
Oil-burning equipment	6	17	15
Hot metal	7	5	12
Wax or solvents overheated	6	7	8
Overflow of molten metal	5	7	2
Not otherwise provided for	88	817	125
	233	1 080	409
Miscellaneous —			
Chemical action (exothermic)	5	23	12
Conducted heat	11	64	48
Radiated heat	264	154	144
Friction	26	77	45
Sun's rays focused	3	12	6
Re-ignition of previous fires	38	35	51
Spontaneous combustion	74	9	81
Arson	241	204	253
Suspicious circumstances	149	240	167
Doubtful origin	68	102	120
Unknown	951	681	710
Aircraft crash	—	1	—
	1 830	1 602	1 637

Table VIII — Method of Extinguishment

	1974	1975	1976
Brigade using deliveries —			
1 delivery	632	1 065	557
2 deliveries	490	478	330
3 deliveries	140	163	123
4 deliveries	70	60	40
5 deliveries	19	20	19
6 deliveries	11	21	7
7 deliveries	10	8	6
8 deliveries	10	10	1
9 deliveries	12	7	1
Over 9 deliveries	230	67	151
No action	—	—	—
	1 624	1 899	1 234
Brigade using mobile hose reels —			
40 gallons or less	1 456	1 348	1 553
41-60 gallons	282	335	345
61-80 gallons	75	78	76
81-100 gallons	257	168	211
101-120 gallons	23	33	43
121-150 gallons	96	69	66
151-200 gallons	102	138	105
201-300 gallons	97	93	180
Tank augmented	257	683	823
H.P. Fog	654	83	129
	3 299	3 028	3 531
Brigade using miscellaneous means —			
Removal	137	224	183
Switching off and disconnecting	171	176	92
Cutting away	2	4	8
Beaters	1	3	1
Smothering	26	31	19
	337	438	303
Brigade using hand appliances —			
Bucket pump	78	65	43
Garden hose	189	172	114
C.O.2. extinguisher	988	1 020	1 124
Dry powder extinguisher	284	195	231
Foam extinguisher	3	11	18
C.T.C. extinguisher	1	3	1
Soda acid extinguisher	1	2	2
Buckets of water	74	43	40
Fixed hose reel	79	103	79
Other extinguishers	33	80	99
	1 730	1 694	1 751
By occupier —			
Smothering	122	141	113
Buckets of water	259	306	330
Beating	2	3	15
Extinguishers	179	286	204
Fixed hose reels	43	58	87
Deliveries	5	6	—
Disconnection and switching off	107	184	325
Removal	44	129	156
Garden hose	223	280	358
	984	1 393	1 588
Miscellaneous —			
Sprinklers	27	44	14
Self-extinguished and out on arrival	1 319	1 475	1 469
Left to burn out	29	38	18

Table VIII — Method of Extinguishment — continued

	1974	1975	1976
Miscellaneous—*continued*			
Bulk foam	28	26	6
Unknown	—	480	18
	1 043	2 063	1 525

APPENDIX 2 — OPERATIONAL SUMMARY

This section covers the period 1 January to 31 December 1976 and the tables are compiled from the examination of fire reports received from fire districts.

Table I — Districts With Permanently Staffed Brigades Showing Fire Calls

	Number of Calls for Year Ended 31 December 1976	Fires Involving Loss of Property
Auckland	7 399	1 651
Christchurch	3 437	872
Dunedin	2 391	475
Gisborne	392	95
Hamilton	983	266
Hastings	613	175
Hawera	242	65
Hutt Valley and Bays	1 220	299
Invercargill	1 247	310
Kawerau	371	140
Masterton	359	102
Napier	732	216
Nelson	460	90
New Plymouth	599	149
North Shore	1 331	310
Palmerston North	741	198
Porirua	1 087	255
Rotorua	674	206
Taupo	390	106
Tauranga	423	131
Timaru	480	118
Upper Hutt	667	136
Wanganui	497	157
Wellington	2 802	583
Whangarei	402	93
Totals	29 939	7 188

Table II — Districts With Volunteer Staffed Brigades Showing Fire Calls:

	Number of Calls for Year Ended 31 December 1976	Fires Involving Loss of Property
Akaroa	15	3
Alexandra	57	13
Amberley	21	7
Apiti	1	—
Arrowtown	24	3
Ashburton	170	43
Balclutha	103	24
Balfour	25	3
Benneydale	5	4

Table II — Districts With Volunteer Staffed Brigades Showing Fire Calls — continued

	Number of Calls for Year Ended 31 December 1976	Fires Involving Loss of Property
Blackball	17	4
Blenheim	108	42
Brunner	22	4
Bulls	23	11
Cambridge	72	31
Carterton	49	16
Chatham Island	5	3
Cheviot	22	4
Clinton	21	8
Clyde	13	3
Collingwood	8	1
Coromandel	8	—
Cromwell	37	6
Culverden	11	5
Cust	6	1
Dannevirke	57	22
Darfield	64	15
Dargaville	59	10
Eastbourne	44	8
Edendale	25	7
Edgecumbe	30	12
Eketahuna	12	4
Eltham	58	18
Fairlie	20	3
Featherston	56	12
Feilding	116	34
Fox Glacier	4	2
Foxton	25	10
Foxton Beach	11	5
Geraldine	50	7
Glenavy	9	2
Glen Eden	187	52
Gore	199	34
Granity	8	3
Greymouth	120	40
Greytown	35	10
Halcombe	16	2
Hamner	22	6
Harihari	24	7
Havelock	8	1
Hawarden	10	4
Helensville	17	12
Henderson	527	129
Herald Island/Whenuapai	76	25
Heriot	7	3
Hokitika	61	4
Howick	107	17
Hunterville	14	5
Huntly	74	33
Inglewood	31	9
Kaeo	13	7
Kaiapoi	84	18
Kaikohe	40	12
Kaikoura	35	14
Kaitaia	36	13
Kaitangata	25	5
Kaiwaka	—	—
Kaponga	17	5
Karamea	9	4
Katikati	19	10
Kawakawa	38	8

Table II — Districts With Volunteer Staffed Brigades Showing Fire Calls — continued

	Number of Calls for Year Ended 31 December 1976	Fires Involving Loss of Property
Kawhia	—	—
Kerikeri	37	6
Kohukohu	4	1
Kumara	5	1
Kumeu-Huapai	73	25
Kurow	32	7
Lake Hawea	4	1
Lake Tekapo	15	5
Lawrence	13	7
Leigh	5	—
Leeston	21	6
Levin	126	42
Lincoln	91	26
Little River	9	3
Luggate	8	1
Lumsden	19	3
Mamaku	17	—
Manaia	26	6
Mangakino	58	7
Mangaweka	17	3
Mangonui	12	2
Manunui	20	5
Mapua	—	—
Martinborough	13	6
Marton	62	26
Matamata	63	30
Matata	2	1
Matawai	2	2
Mataura	79	15
Maungaturoto	4	—
Methven	28	10
Mercer	24	4
Millers Flat	6	—
Milton	54	15
Morrinsville	59	35
Mossburn	12	3
Motueka	76	14
Murchison	6	3
Murupara	14	8
Naseby	6	1
National Park	13	2
Ngahere	3	1
Ngaruawahia	65	19
Ngatea	37	16
Norsewood	3	—
Nuhaka	12	1
Oamaru	179	43
Ohai	16	9
Ohakune	27	11
Ohura	—	—
Okaihau	16	7
Okato	7	5
Omakau	13	1
Omarama	22	4
Omokoroa	10	1
Opotiki	34	17
Opunake	27	8
Orawia	3	2
Orepuki	7	1
Ormondville	4	2
Otaki	48	19

Table II — Districts With Volunteer Staffed Brigades Showing Fire Calls — continued

	Number of Calls for Year Ended 31 December 1976	Fires Involving Loss of Property
Otautau	30	10
Otematata	15	5
Otorohanga	27	15
Owhango	12	3
Oxford	8	1
Paekakariki	28	12
Paeroa	75	16
Pahiatua	18	11
Paihia	18	5
Palmerston	48	15
Papatoetoe	571	144
Paraparaumu	94	34
Patea	42	19
Picton	39	16
Pio Pio	8	7
Pleasant Point	16	6
Pongaroa	1	—
Porangahau	2	—
Pukekohe	143	45
Putaruru	38	12
Queenstown	77	14
Raetihi	16	7
Raglan	37	5
Rakaia	22	5
Ranfurly	25	4
Rangiora	95	37
Rangiwahia	3	2
Ratana	5	—
Rawene	8	2
Reefton	16	6
Richmond	43	12
Riversdale	11	4
Riverton	32	6
Rongotea	17	8
Rolleston	22	6
Ross	8	3
Roxburgh	24	7
Ruatoria	7	3
Ruawai	10	2
Runanga	9	2
Russell	11	2
St. Andrews	25	12
Seddon	19	6
Shannon	13	3
Silverdale	132	38
Southbridge	9	3
Springfield	14	3
Stratford	98	36
Taihape	47	18
Tairua	17	3
Takaka	32	12
Taneatua	5	4
Tapanui	23	4
Taumarunui	59	13
Te Anau	55	8
Te Araroa	5	2
Te Aroha	21	7
Te Awamutu	117	52
Te Karaka	9	6
Te Kauwhata	12	7
Te Kuiti	64	18

Table II — Districts With Volunteer Staffed Brigades Showing Fire Calls — continued

	Number of Calls for Year Ended 31 December 1976	Fires Involving Loss of Property
Temuka	64	22
Te Puke	36	11
Thames	54	24
Thames Coast	8	2
Thornbury	16	6
Tikitiki	2	1
Tirau	21	6
Titirangi	187	53
Tokaanu	4	—
Tokanui	15	3
Tokomaru	9	2
Tokoroa	124	38
Tolaga Bay	7	3
Tuakau	32	16
Tuatapere	27	9
Urenui	11	5
Waiau	9	3
Waiheke	31	6
Waihi	67	28
Waikaia	—	—
Waikaka	5	2
Waikanae	35	10
Waikari	9	3
Waikouaiti	41	14
Waimangaroa	7	1
Waimate	89	23
Wainuiomata	187	66
Waipara	3	—
Waipawa	29	16
Waipukurau	43	21
Wairoa	51	18
Waitara	66	19
Waitotara	4	2
Waiuku	50	22
Wakefield	9	6
Wanaka	36	10
Warkworth	26	9
Waverley	12	1
Wellsford	19	7
Westport	81	27
Whakatane	78	22
Whangamata	28	5
Whataroa	7	3
Whitianga	71	5
Winton	47	13
Woodville	21	12
Wyndham	21	5
Totals	9 316	2 744

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95611A—77 CT

APPENDIX G REPORT FORMS 902F, 902G

_____ Fire Department 902F

Fill In This Report In Your Own Words

BASIC INCIDENT REPORT

☐ Revised Report

COMPLETE ON ALL INCIDENTS

A	FD ID	Incident No.	Exp. No.	Mo.	Day	Year	Day of the Week	Alarm Time	Time—"In Service"
B	CORRECT ADDRESS:	No.	Dir.	Name		Type	Zip Code		Census Tract
C	Occupant Name						Telephone		Room or Apt.
D	Owner Name			Address					Telephone
E	Method of Alarm from Public						Type of Situation Found		
F	Type of Action Taken				Co. Inspection District	Shift	No. Alarms	Mutual Aid ☐ Rec'd ☐ Given	
G	No. Fire Service Personnel Used at Scene		No. Engines Used at Scene			No. Aerial Apparatus Used at Scene		No. Other Vehicles Used at Scene	

COMPLETE IF CASUALTY OR FIRE

H	No. Incident-related Injuries[Δ] Fire Service / Others		No. Incident-related Fatalities[Δ] Fire Service / Others	Complex
I	Fixed Property Use		Mobile Property Type[ΔΔ]	

ALL IGNITIONS

J	Area of Fire Origin	Level of Fire Origin	Termination Stage
K	Equipment Involved in Ignition (if any)[ΔΔ]	Form of Heat of Ignition	
L	Type of Material Ignited	Form of Material Ignited	Ignition Factor

COMPLETE IF FIRE FOR STRUCTURE FIRE ONLY

M	Structure Type	Construction Type	Construction Method
N	Extent of Flame Damage	Extent of Smoke Damage	Extent of Water Damage
O	Extent of Fire Control Damage	Detector Performance	Sprinkler Performance
P	IF FLAME SPREAD BEYOND ROOM OF ORIGIN: Type of Material Generating Most Flame		Avenue of Flame Travel
Q	IF SMOKE SPREAD BEYOND ROOM OF ORIGIN: Type of Material Generating Most Smoke		Avenue of Smoke Travel

ALL FIRES

R	Method of Extinguishment		
S	Estimated Total Dollar Loss	Property Damage Classification	Time from Alarm to Agent Application

COMPLETE ON ALL INCIDENTS

T Officer in Charge (Name, Position, Assignment) Date

Member Making Report (If Different from Above) Date

[Δ]List name, age, sex, and description of injury for each casualty on form 902G

[✓]Collected by the National Fire Data System

[ΔΔ]Complete Below

☐ Check box if remarks are made on reverse side.

U	If Mobile Property	Year *	Make *	Model *	Serial No. *	License No. (If any) *
V	If Equipment Involved In Ignition	Year *	Make *	Model *	Serial No. *	Voltage (if any) *

This form is for use with NFPA 902M, *Field Incident Manual.* Users should also refer to NFPA 901, *Uniform Coding for Fire Protection,* for information on fire reporting systems and classifications for information entered on this form.

_____ Fire Department

902G

Fill In This Report
In Your Own Words

BASIC CASUALTY REPORT

A	FD ID	Incident No.	Exp. No.	Mo.	Day	Year	Day of Week	Alarm Time

Page. . . . . of . . . . . .

CASUALTY 1

Casualty Number ____ ☐ Revised Report

GA	Casualty Last Name	First Name	MI	D.O.B.	Age	Time of Injury

GB Home Address | Telephone

GC

SEX	CASUALTY TYPE	SEVERITY	AFFILIATION
1☐ Male	1☐ Fire Casualty	1☐ Injury	1☐ Fire Service
2☐ Female	2☐ Action Casualty	2☐ Death	2☐ Other Emergency Personnel
	3☐ EMS Casualty		3☐ Civilian

GD	Familiarity With Structure	Location at Ignition	Condition Before Injury
GE	Condition Preventing Escape	Activity at Time of Injury	Cause of Injury
GF	Nature of Injury	Part of Body Injured	Disposition

☐ See Remarks on Back ☐ See Additional Report

CASUALTY 2

Casualty Number ____ ☐ Revised Report

GA	Casualty Last Name	First Name	MI	D.O.B.	Age	Time of Injury

GB Home Address | Telephone

GC

SEX	CASUALTY TYPE	SEVERITY	AFFILIATION
1☐ Male	1☐ Fire Casualty	1☐ Injury	1☐ Fire Service
2☐ Female	2☐ Action Casualty	2☐ Death	2☐ Other Emergency Personnel
	3☐ EMS Casualty		3☐ Civilian

GD	Familiarity With Structure	Location at Ignition	Condition Before Injury
GE	Condition Preventing Escape	Activity at Time of Injury	Cause of Injury
GF	Nature of Injury	Part of Body Injured	Disposition

☐ See Remarks on Back ☐ See Additional Report

CASUALTY 3

Casualty Number ____ ☐ Revised Report

GA	Casualty Last Name	First Name	MI	D.O.B.	Age	Time of Injury

GB Home Address | Telephone

GC

SEX	CASUALTY TYPE	SEVERITY	AFFILIATION
1☐ Male	1☐ Fire Casualty	1☐ Injury	1☐ Fire Service
2☐ Female	2☐ Action Casualty	2☐ Death	2☐ Other Emergency Personnel
	3☐ EMS Casualty		3☐ Civilian

GD	Familiarity With Structure	Location at Ignition	Condition Before Injury
GE	Condition Preventing Escape	Activity at Time of Injury	Cause of Injury
GF	Nature of Injury	Part of Body Injured	Disposition

☐ See Remarks on Back ☐ See Additional Report

T	Officer in Charge (Name, Position, Assignment)	Date
	Member Making Report (If Different From Above)	Date

◤ Collected by the National Fire Data System

This form is for use with NFPA 902M, *Field Incident Manual.* Users should also refer to NFPA 901, *Uniform Coding for Fire Protection,* for information on fire reporting systems and classifications for information entered on this form.

100M-12-76-FP

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APPENDIX H REPORT FORMS FD 100, FD 200, FD 200A
FD 300, FD 400, FD 500

4 0	INCIDENT NUMBER	SUPP
1 2	3 7	8 9

LOCATION/ADDRESS CROSS STREET DISTRICT

TIME AND DATE CALL RECEIVED			
TIME	MONTH	DAY	YEAR
10 13	14		19

ALARM SOURCE (20)

1. ☐ TELEPHONE
2. ☐ BOX
3. ☐ PFAS
4. ☐ VERBAL/IN PERSON
5. ☐ RADIO
9. ☐ OTHER

INCIDENT TYPE: _____

REPORTED BY: _____

PHONE NO. _____

BOX NO. RECEIVED	FIRST DUE UNIT	HIGHEST ALARM LEVEL	CHECK BOX IF MORE THAN 11 UNITS ARE DISPATCHED
21 26	27 31	32	☐ 33

BOX NO. TRANSMITTED _____

CHANGE ☐ (73) DELETE ☐
2 3

TIME AND DATE INCIDENT UNDER CONTROL	TIME AND DATE LAST UNIT DEPARTED SCENE
34 37 38 43	44 47 48 53

DISPATCHER(S): _____

4 1	RESPONDING FD UNITS	TIME AND DATE UNIT DISPATCHED				TIME AND DATE UNIT ARRIVED AT SCENE				TIME AND DATE UNIT IN-SERVICE			
1 2		TIME	MONTH	DAY	YEAR	TIME	MONTH	DAY	YEAR	TIME	MONTH	DAY	YEAR
ALARM	10 14	15 18	19		24	25 28	29		34	35 38	39		44

*NOTE: A SEPARATE CARD MUST BE PUNCHED FOR EACH ROW OF DATA. POSITIONS 1–2 CONTAIN THE CARD CODE AND POSITIONS 3–9 CONTAIN THE INCIDENT AND SUPPLEMENTAL NUMBERS.

DATE	TIME	CHANGE 2 ☐ DELETE 3 ☐	(73)

COMPLETE FOR ALL INCIDENTS

FIELD INCIDENT REPORT

FD-200

5 0 (1 2)	INCIDENT NUMBER (3 – 7)	SUPP (8 9)

AUXILIARY TRIP? (CHECK) (10)	INCIDENT TYPE J (11 12)	TYPE OF ACTION TAKEN P (13)	PROPERTY NAME	APT. NO.

CORRECT LOCATION/ADDRESS (14 – 33)	CITY	STATE	ZIP CODE

COMMUNITY OR SUBDIVISION	COUNTY	PARCEL NUMBER OR CENSUS TRACT (34 – 45)	DISTRICT (46 47)	OUT OF JURISDICTION (CHECK) (48)

COMPLEX DA (50 51)	FIXED PROPERTY USE DB (52 54)

PROPERTY REPRESENTATIVE: NAME	TELEPHONE	ADDRESS (STREET, CITY, STATE, ZIP CODE)

OCCUPANT: NAME	TELEPHONE	RELATIONSHIP CBB (55)	PROPERTY MANAGEMENT CD (56)

COMPLETE IF FIRE

5 1 (1 2)	LEVEL OF ORIGIN KAA (10 12)	AREA OF ORIGIN KAB (13 14)
	EQUIPMENT INVOLVED IN IGNITION KBA (15 16)	FORM OF HEAT OF IGNITION KBB (17 18)

IF EQUIPMENT INVOLVED IN IGNITION — YEAR — MAKE — MODEL — SERIAL NO. — VOLTAGE (IF ANY)

TYPE OF MATERIAL IGNITED KCA (19 20)	FORM OF MATERIAL IGNITED KCB (21 22)
ACT OR OMISSION — ORIGIN OF FIRE KDA (23 24)	CODE VIOLATION? 1 ☐ CHECK IF VIOLATION (25)

MAIN AVENUES OF FIRE SPREAD — LA (26 27)

TYPE OF MATERIAL MOST RESPONSIBLE FOR FIRE SPREAD LBA (28 29)	FORM OF MATERIAL MOST RESPONSIBLE FOR FIRE SPREAD LBB (30 31)
ACT OR OMISSION MOST RESPONSIBLE FOR FIRE SPREAD LCA (32 33)	CODE VIOLATION? 1 ☐ CHECK IF VIOLATION (34)

COMPLETE IF MOBILE PROPERTY

5 4 (1 2)	MOBILE PROPERTY USE DC (10 11)	LICENSE NO. (12 – 19)	STATE (20 21)

MAKE — MODEL — YEAR — VEHICLE ID. NO.

COMPLETE IF LOSS INVOLVED

5 5 (1 2)	ESTIMATED VALUE	ESTIMATED LOSS	5 6 (1 2) INSURED VALUE	INSURED LOSS
STRUCTURE	(10 – 17)	(18 – 25)	(10 – 17)	(18 – 25)
CONTENTS	(26 – 33)	(34 – 41)	(26 – 33)	(34 – 41)

INSURANCE COMPANY NAME

NOTE: POSITIONS 3-9 OF EACH CARD MUST CONTAIN THE INCIDENT AND SUPPLEMENTAL NUMBERS.

INCIDENT NUMBER (3–7)	SUPP (8–9)

FD-200

COMPLETE IF STRUCTURE FIRE

5 | 3 (1–2)	FIXED PROPERTY TYPE EA (10)	YEAR CONST (11–13)	HEIGHT (14–16)	GROUND FLOOR AREA (17–22)	CONSTRUCTION TYPE EE (23)	OCCUPANT LOAD (24–28)

MOST RECENT INSPECTION	REPORT NO. (29–33)	MONTH (34–35)	DAY (36–37)	YEAR (38–39)	CODE VIOLATION NOTED? (CHECK IF YES) (40)	COMPLIANCE OBTAINED? (CHECK IF YES) (41)

OBSTACLES TO FIRE RESCUE (CHECK BOXES)

WINDOWLESS BUILDING (42)	STATIONARY/STEEL SASH (43)	INSUFFICIENT EXITS (44)	OBSTRUCTION IN EGRESS (45)	FLAMMABLE IN EGRESS (46)

UNPROTECTED VERTICAL OPENINGS (47)	FLAMMABLE MATERIALS (48)	LADDERING OBSTACLES (49)	OTHER RESCUE OBSTACLES (50)

OBSTACLES TO FIRE FIGHTING (CHECK BOXES)

LACK OF ACCESS (51)	WINDOWLESS WALLS (52)	LACK OF VENTS OR DIFFICULT TO VENT (53)	AREAS BEYOND REACH OF HOSE STREAMS (54)	EXCESSIVE HEIGHT (55)

INSUFFICIENT CUTOFFS (56)	CONTENTS (57)	OTHER FIRE FIGHTING OBSTACLES (58)

EXTENT OF DAMAGE

CHAR DAMAGE TA (59)	SMOKE AND WATER DAMAGE TB (60)	LOST TIME OF BUSINESS	NO. DAYS (61–63)

COMPLETE IF THERE WERE FIRE PROTECTION FACILITIES

5 | 2 (1–2)	WATER SUPPLY: TYPE FAA (10)	FLOW (11–14)	MAIN (15–16)	TANK CAPACITY (17–21)

SPRINKLERS: TYPE FBAA (22)	NUMBER (23–25)	NO. OPENED (26–28)	EFFECTIVENESS RBAB (29)

STANDPIPES: TYPE FBBA (30)	NUMBER (31–32)	NO. USED (33–34)	EFFECTIVENESS RBBB (35)

PORTABLE EXTINGUISHERS: TYPE FBCA (36)	NUMBER (37–39)	NO. USED (40–42)	EFFECTIVENESS RBCB (43)

PRIVATE BRIGADE: TYPE FBDA (44)	SIZE (45–47)	NO. USED (48–50)	EFFECTIVENESS RBDB (51)

SPECIAL WATER SOURCE: TYPE FBEA (52)	100 GALLONS (53–57)	100 GALLONS USED (58–62)	EFFECTIVENESS RBEB (63)

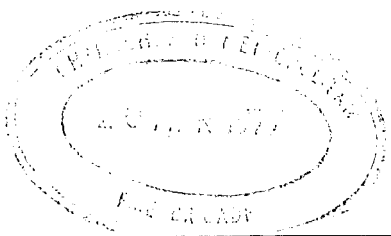
SPECIAL HAZARD PROTECTION: TYPE FBGA (64)	EFFECTIVENESS RBGA (65)

SIGNALING OR WARNING SYSTEM: TYPE FBHA (66)	EFFECTIVENESS RBHA (67)

WATCHMAN: (CHECK IF YES) FBFA (68)	EFFECTIVENESS RBFA (69)	OTHER FIRE PROTECTION FACILITIES (CHECK IF YES) FBIA (70)	EFFECTIVENESS RBIA (71)

COMPLETE FOR ALL INCIDENTS

REMARKS:



OFFICER IN CHARGE:	DATE:
PREPARED BY:	DATE:
APPROVED BY:	DATE:

NOTE: POSITIONS 3–9 OF EACH CARD MUST CONTAIN THE INCIDENT AND SUPPLEMENTAL NUMBERS.

CHANGE 2 ☐ (73) DELETE 3 ☐

RESOURCE UTILIZATION REPORT

FD-200A

COMPLETE FOR ALL INCIDENTS

5 | 7 (1 2) — INCIDENT NO. (3 – 7)

STATISTICS BASED ON FOLLOWING UNITS

OFFICERS (ON DUTY)	15 16	PUMPERS RESPONDED	25 26	AERIAL LDRS/PLATFMS RESPONDED	37 38
FIRE FIGHTERS (ON DUTY)	17 19	PUMPER CREWS WORKED	27 28	AL/P CREWS WORKED	39 40
OFFICERS (SPECIAL CALL)	20 21	PUMPS USED	29 30	AL/P USED	41 42
FIRE FIGHTERS (SPECIAL CALL)	22 24				
		HOSE WAGONS RESPONDED	31 32	OTHER APPARATUS RESPONDED	43 44
		WAGON CREWS WORKED	33 34	OTHER APPARATUS CREWS WORKED	45 46
		HOSE WAGON USED	35 36	OTHER APPARATUS USED	47 48

COMPLETE IF EQUIPMENT OR CHEMICALS WERE USED

5 | 8 (1 2) — FIRE STREAM REPORT

¼" OR 1" HAND LINES	15 16
1½" OR 2" HAND LINES	17 18
2½" OR 3" HAND LINES	19 20
MASTER STREAM APPLIANCES	21 22
OTHER STREAMS	23 24
SOLID STREAMS	25 26
SPRAY/COMBINATION STREAMS	27 28
MAX. FLOW RATE (GPM)	29 32
DURATION OF FLOW (MIN)	33 36
TOTAL WATER (100 GAL.)	37 40

EQUIPMENT USED REPORT

HOSE (HUNDREDS OF FEET)	41 42	SMOKE EJECTORS	53 54
LADDERS UP TO 30′	43 44	ELECTRIC GENERATORS	55 56
LADDERS OVER 30′	45 46	RESUSCITATOR	57 58
HAND EXTINGUISHERS	47 48	PORTABLE PUMPS	59 60
BREATHING EQUIPMENT	49 50	FLOODLIGHTS	61 62
SALVAGE COVERS	51 52	POWER TOOLS	63 64
		OTHER EQUIPMENT	65 66

5 | 9 (1 2) — CHEMICALS REPORT

CARBON DIOXIDE (LBS.)	15 18		
DRY CHEMICALS (LBS.)	19 22	HALOGENATED AGENT (LBS.)	27 30
FOAM/SURFACTANT (GAL.)	23 26	OTHER CHEMICALS	31 34

NOTES: POSITIONS 3–7 OF EACH CARD MUST CONTAIN THE INCIDENT NUMBER.

REMARKS:

OFFICER IN CHARGE

DATE	TIME	ADDRESS

FD-300

COMPANY INCIDENT REPORT

COMPLETE FOR ALL INCIDENTS

6 | 0 (1 2)

INCIDENT NO. (3 – 7) COMPANY NO. (10 – 14)

(73) CHANGE 2 ☐ DELETE 3 ☐

OFFICERS (ON DUTY)	15 16	PUMPERS RESPONDED	25 26	AERIAL LDRS/PLATFMS RESPONDED	37 38
FIRE FIGHTERS (ON DUTY)	17 19	PUMPER CREWS WORKED	27 28	AL/P CREWS WORKED	39 40
OFFICERS (SPECIAL CALL)	20 21	PUMPS USED	29 30	AL/P USED	41 42
FIRE FIGHTERS (SPECIAL CALL)	22 24				
		HOSE WAGONS RESPONDED	31 32	OTHER APPARATUS RESPONDED	43 44
		WAGON CREWS WORKED	33 34	OTHER APPARATUS CREWS WORKED	45 46
		HOSE WAGON USED	35 36	OTHER APPARATUS USED	47 48

COMPLETE IF EQUIPMENT OR CHEMICALS WERE USED

6 | 1 (1 2) FIRE STREAM REPORT

¼" OR 1" HAND LINES	15 16	EQUIPMENT USED REPORT			
1½" OR 2" HAND LINES	17 18	HOSE (HUNDREDS OF FEET)	41 42	SMOKE EJECTORS	53 54
2½" OR 3" HAND LINES	19 20	LADDERS UP TO 30′	43 44	ELECTRIC GENERATORS	55 56
MASTER STREAM APPLIANCES	21 22	LADDERS OVER 30′	45 46	RESUSCITATOR	57 58
OTHER STREAMS	23 24	HAND EXTINGUISHERS	47 48	PORTABLE PUMPS	59 60
		BREATHING EQUIPMENT	49 50	FLOODLIGHTS	61 62
SOLID STREAMS	25 26	SALVAGE COVERS	51 52	POWER TOOLS	63 64
SPRAY/COMBINATION STREAMS	27 28			OTHER EQUIPMENT	65 66
		6 | 2 (1 2) CHEMICALS REPORT			
MAX. FLOW RATE (GPM)	29 32	CARBON DIOXIDE (LBS.)	15 18		
DURATION OF FLOW (MIN)	33 36	DRY CHEMICALS (LBS.)	19 22	HALOGENATED AGENT (LBS.)	27 30
TOTAL WATER (100 GAL.)	37 40	FOAM/SURFACTANT (GAL.)	23 26	OTHER CHEMICALS	31 34

NOTES: POSITIONS 3-7 OF EACH CARD MUST CONTAIN THE INCIDENT NUMBER.

POSITIONS 10–14 OF EACH CARD MUST CONTAIN A COMPANY OR UNIT NUMBER.

REMARKS:

COMPANY OFFICER

INCIDENT NUMBER (3–7) | SUPP. NO. (8–9)

FD-400

FIRE INVESTIGATION REPORT

CHANGE 2 ☐
DELETE 3 ☐ (73)

LOCATION – ADDRESS

PROPERTY REPRESENTATIVE

APT. NUMBER:

ZIP:

FIRE ORIGIN

71 (1–2) LEVEL OF ORIGIN	KAA (10–12)	AREA OF ORIGIN	KAB (13–14)
EQUIPMENT INVOLVED IN IGNITION	KBA (15–16)	FORM OF HEAT OF IGNITION	KBB (17–18)
IF EQUIPMENT INVOLVED IN IGNITION — YEAR	MAKE	MODEL	SERIAL NO. — VOLTAGE (IF ANY)
TYPE OF MATERIAL IGNITED	KCA (19–20)	FORM OF MATERIAL IGNITED	KCB (21–22)
ACT OR OMISSION — ORIGIN OF FIRE	KDA (23–24)	CODE VIOLATION? 1 ☐ CHECK IF VIOLATION (25)	
MAIN AVENUES OF FIRE SPREAD			LA (26–27)
TYPE OF MATERIAL MOST RESPONSIBLE FOR FIRE SPREAD	LBA (28–29)	FORM OF MATERIAL MOST RESPONSIBLE FOR FIRE SPREAD	LBB (30–31)
ACT OR OMISSION MOST RESPONSIBLE FOR FIRE SPREAD	LCA (32–33)	CODE VIOLATION? 1 ☐ CHECK IF VIOLATION (34)	

COMPLETE IF LOSS INVOLVED

75 (1–2)	ESTIMATED VALUE	ESTIMATED LOSS	76 (1–2)	INSURED VALUE	INSURED LOSS
STRUCTURE	(10–17)	(18–25)		(10–17)	(18–25)
CONTENTS	(26–33)	(34–41)		(26–33)	(34–41)

INSURANCE COMPANY NAME

NOTE: POSITIONS 3–9 OF EACH CARD MUST CONTAIN THE INCIDENT AND SUPPLEMENTAL NUMBERS.

SIGNATURE	DATE

Enter Remarks on Other Side

DATE	TIME	ADDRESS

PAGE OF

CASUALTY REPORT

FD-500

MONTH	DAY	YEAR
50		55

(73)
CHANGE 2 ☐ DELETE 3 ☐

	INCIDENT NUMBER	SUPP	NAME	AGE
1 0				
1 2	3 7	8 9	10 33	34 36

SEX MALE (M) FEMALE (F)	INJURY (I) OR DEATH (D)	CIVILIAN (C) OR FIREFIGHTER (F)	FIXED PROPERTY USE	MOBILE PROPERTY USE
37	38	39	DB 40 42	DB 43 44

(45) CONDITION BEFORE CASUALTY
- ☐ 1 Asleep
- ☐ 2 Bedridden or other physical handicap
- ☐ 3 Impaired by drugs or alcohol
- ☐ 4 Under restraint
- ☐ 5 Too young to act
- ☐ 6 Too old to act; senile
- ☐ 7 Mentally handicapped
- ☐ 8 Awake and unimpaired
- ☐ 9 Other (specify)
- ☐ 0 Undetermined or not applicable

(46) ACTION CAUSING CASUALTY
- ☐ 1 Caught: in, under or between; or trapped by
- ☐ 2 Exposed to: heat, chemicals, radiation, smoke, etc.
- ☐ 3 Fell over, on; or tripped on
- ☐ 4 Stepped on or into
- ☐ 5 Overexertion
- ☐ 6 Rubbed by or contact with
- ☐ 7 Struck by
- ☐ 8 Not applicable
- ☐ 9 Other (specify)
- ☐ 0 Undetermined

(47) NATURE OF CASUALTY
- ☐ 1 Burns and asphyxia/smoke
- ☐ 2 Burns only
- ☐ 3 Asphyxia/smoke only
- ☐ 4 Wound, cut, bleeding
- ☐ 5 Dislocation, fracture
- ☐ 6 Complaint of pain
- ☐ 7 Shock
- ☐ 8 Strain, sprain
- ☐ 9 Other (specify)
- ☐ 0 Undetermined

(48) PART OF BODY INJURED
- ☐ 1 Head, Neck, includes respiratory system
- ☐ 2 Body, Trunk, Back
- ☐ 3 Arm
- ☐ 4 Leg
- ☐ 5 Hand
- ☐ 6 Foot
- ☐ 7 Internal — except respiratory system
- ☐ 8 Multiple parts
- ☐ 9 Other (specify)
- ☐ 0 Undetermined

(49) DISPOSITION OF CASUALTY
- ☐ 1 Refused help
- ☐ 2 First aid at scene and released
- ☐ 3 Taken to hospital — by fire department vehicle
- ☐ 4 Taken to hospital — by non-fire department vehicle
- ☐ 5 Taken to other than hospital
- ☐ 6 Died
- ☐ 9 Other (specify)
- ☐ 0 Undetermined

REMARKS

MONTH	DAY	YEAR
50		55

(73)
CHANGE 2 ☐ DELETE 3 ☐

	INCIDENT NUMBER	SUPP	NAME	AGE
8 0				
1 2	3 7	8 9	10 33	34 36

SEX MALE (M) FEMALE (F)	INJURY (I) OR DEATH (D)	CIVILIAN (C) OR FIREFIGHTER (F)	FIXED PROPERTY USE	MOBILE PROPERTY USE
37	38	39	DB 40 42	DB 43 44

(45) CONDITION BEFORE CASUALTY
- ☐ 1 Asleep
- ☐ 2 Bedridden or other physical handicap
- ☐ 3 Impaired by drugs or alcohol
- ☐ 4 Under restraint
- ☐ 5 Too young to act
- ☐ 6 Too old to act; senile
- ☐ 7 Mentally handicapped
- ☐ 8 Awake and unimpaired
- ☐ 9 Other (specify)
- ☐ 0 Undetermined or not applicable

(46) ACTION CAUSING CASUALTY
- ☐ 1 Caught: in, under or between; or trapped by
- ☐ 2 Exposed to: heat, chemicals, radiation, smoke, etc.
- ☐ 3 Fell over, on; or tripped on
- ☐ 4 Stepped on or into
- ☐ 5 Overexertion
- ☐ 6 Rubbed by or contact with
- ☐ 7 Struck by
- ☐ 8 Not applicable
- ☐ 9 Other (specify)
- ☐ 0 Undetermined

(47) NATURE OF CASUALTY
- ☐ 1 Burns and asphyxia/smoke
- ☐ 2 Burns only
- ☐ 3 Asphyxia/smoke only
- ☐ 4 Wound, cut, bleeding
- ☐ 5 Dislocation, fracture
- ☐ 6 Complaint of pain
- ☐ 7 Shock
- ☐ 8 Strain, sprain
- ☐ 9 Other (specify)
- ☐ 0 Undetermined

(48) PART OF BODY INJURED
- ☐ 1 Head, Neck, includes respiratory system
- ☐ 2 Body, Trunk, Back
- ☐ 3 Arm
- ☐ 4 Leg
- ☐ 5 Hand
- ☐ 6 Foot
- ☐ 7 Internal — except respiratory system
- ☐ 8 Multiple parts
- ☐ 9 Other (specify)
- ☐ 0 Undetermined

(49) DISPOSITION OF CASUALTY
- ☐ 1 Refused help
- ☐ 2 First aid at scene and released
- ☐ 3 Taken to hospital — by fire department vehicle
- ☐ 4 Taken to hospital — by non-fire department vehicle
- ☐ 5 Taken to other than hospital
- ☐ 6 Died
- ☐ 9 Other (specify)
- ☐ 0 Undetermined

REMARKS

NOTE: POSITIONS 50-55 OF EACH CARD MUST CONTAIN THE DATE OF THE CASUALTY.

APPENDIX I INPUT FORM FOR EXPERIMENT

CHRISTCHURCH FIRE SERVICE

CANTERBURY UNIVERSITY REPORT

1 CARD TYPE 1

2 CALL NO. _ _ _ _ DATE _ _ / _ _ / _ _ TIME _ _ _ _

3 ADDRESS _

3 LOCATION _ _ STATION _ _ SUSPICIOUS (Y/N) _

3 ALARM TRANSMISSION _ ALARM NO. _

5 NO. OF MEN (ATTENDING) _ _

OFFICERS (ATTENDING) _ _

1 CARD TYPE 2

2 CALL NO. DUPLICATE

6 APPLIANCES (RESPONDING) _

_ _

1 CARD TYPE 3

2 CALL NO. DUPLICATE

6 SITUATION FOUND _ _ PROPERTY FIRE (Y/N) _

9 ACTION TAKEN _ EQUIPMENT USED _ _

2 DEATHS _ _ INJURIES _ _

5 SPECIAL SERVICE _

FOR PROPERTY FIRE ONLY

7 DESCRIPTION NUMBER OF FLOORS _ _

SIZE (FLOOR AREA) _ _ _ _

OCCUPANCY TYPE _

CONSTRUCITON TYPE _

SPRINKLERS (Y/N) _ NO. OF HEADS _ _

DETECTORS (Y/N) _

OTHER FIXED INSTALATIONS (Y/N) _

30 CAUSE EQUIPMENT INVOLVED _ HEAT SOURCE _

32 DAMAGE EXTENT OF DAMAGE _ UNIT OF DAMAGE (%) _ _

35 APPLIANCES (BACK-UP) _

_ _

APPENDIX J CODING SCHEME FOR EXPERIMENT

LOCATION

1. Addington
2. Aranui
3. Avonhead
4. Avonside
5. Beckenham
6. Belfast
7. Bexley
8. Bishopdale
9. Bromley
10. Brooklands
11. Bryndwr
12. Burnside
13. Burwood
14. Cashmere
15. Dallington
16. Fendalton
17. Halswell
18. Harewood
19. Heathcote
20. Hei Hei
21. Hillmorton
22. Hillsborough
23. Hoon Hay
24. Hornby
25. Huntsbury
26. Ilam
27. Islington
28. Linwood
29. McCormacks Bay
30. Mairehau
31. Marshland
32. Merivale
33. Monks Bay
34. Mt. Pleasant
35. New Brighton
36. North New Brighton
37. Oaklands
38. Opawa
39. Papanui
40. Redcliffs
41. Redwood
42. Riccarton
43. Richmond
44. Russley
45. St. Albans
46. St. Andrews Hill
47. St. Martins
48. Shirley
49. Sockburn
50. Somerfield
51. South New Brighton
52. South Shore
53. Spencerville
54. Spreydon
55. Stewarts Gully
56. Sumner
57. Sydenham
58. Templeton
59. Upper Riccarton
60. Wainoni
61. Waltham
62. Woolston
63. CITY

STATION

1. Headquarters (ch-ch)
2. Spreydon
3. St. Albans
4. Woolston
5. Sockburn
6. Harewood
7. New Brighton
8. Sumner
9. Lyttelton
10. Diamond Harbour
11. Brooklands

CONSTRUCTION TYPE

1. Buildings having external walls of brick (i.e. brick, stone, concrete)
2. Buildings having external walls of wood (i.e. Wood, iron, aluminium)
3. Buildings fo Fire Resistant Contruction (F.R.C.) (i.e. builidngs having all walls and floors of brick, stone, or concrete construction).

ALARM TRANSMISSION

1. 111 - Emergency call.
2. 0/111 call (manual exchange - non direct dial).
3. Exchange phone.
4. Private Fire phone.
5. P.F.A. (Automatic).
6. P.F.A. (Manual).
7. Street Alarm.
8. Radio.
9. Other.

SITUATION FOUND

11. Structure Fire.
12. Chimney Fire.
13. Oven Fire.
14. Scrub/Rubbish Fire.

19. Other Fire.

30. Rescue Call.

40. Hazardous Conditions.

50. Other Special Serivce.

60. F.A. - Good intent.

71. F.A. - Malicious.

73. F.A. - Defective Apparatus.

74. F.A. - Accidental.

OCCUPANCY TYPE

1. Public Assembley Property (e.g. Clubs, Churches, Libraries, Theatres, Restaurants etc.)
2. Educational Property.
3. Institutional Property. (e.g. Care of Sick, Young, Aged etc.)
4. Residential Property.
5. Store, Office Property.
6. Basic Industry, Utility, Defence Property (e.g. Farms, Forests, Mines)
7. Manufacturing Property. (e.g. Food, Plastics, Textiles, Chemical, Metal, Vehicle industries)
8. Storage Property.
9. Special Property (other).

ACTION TAKEN

1. Extinguishment (including rescue etc).
2. Rescue only.
3. Investigation only (e.g. F.A.,fire already out).
4. Remove hazard (e.g. wash down spill).
5. Standby.
6. Salvage only.
7. Ambulance service
8.
9. Other

EQUIPMENT USED

SPECIAL SERVICE

Explosion, rupture (no fire).

21. Steam rupture.
22. Air, gas rupture.
29. Other.

Rescue Call

31. B.A. Call.
32. Emergency Medical call.
33. Lock-in.
34. Search.
35. Extrication.
39. Other.

Hazardous Condition, Standby.

41. Spill, leak (e.g. petrol).
42. Explosive removal.
43. Excessive heat.
44. Power line down.
45. Arcing, shorted electrical equipment.
46. Aircraft standby.
47. Chemical emergency.
49. Other.

Service Call

51. Lock out.
52. Water evacuation.
53. Smoke removal.
54. Assist police.
59. Other.

EQUIPMENT INVOLVED IN IGNITION

1. Heating systems (including chimneys).
2. Cooking equipment.
3. Air conditioning/refrigeration equipment.
4. Electrical Distribution equipment (e.g. wiring, switches etc).
5. Other appliances. (e.g. T.V., dryer, tools, electric blanket etc).
6.
7. Processing equipment (e.g. industrial machines etc).
8. Service, maintenance equipment.
9. Other.
0. No equipment involved.

HEAT SOURCE

1. Heat from Fuel-fired, fuel-powered object.
2. Heat from electrical equipment (overloading, arcing).
3. Heat from smoking materials (e.g. pipe etc).
4. Heat from Open flame, spark.
5. Heat from Hot object.
6. Heat from explosive,firework.
7. Heat from natural source (e.g. sun, lightening).
8. Heat from other fire (exposive fire).
9. Other.

EXTENT OF DAMAGE

1. Confined to object of origin.
2. Confined to part of room or origin.
3. Confined to room of origin.
4. Confined to floor of origin.
5. Confined to building of origin.
6. Extended beyond building of origin.

Chapter K. Section KDB

FIRE FIGHTING AND RESCUE EQUIPMENT USED AT INCIDENT

1. EXTINGUISHED BY THE OCCUPIER OR PASSERBY USING:

11 Garden Hose.
12 Portable Extinguisher (all types).
13 Fixed Hose Reel.
14 Isolating Power source (switch-off, disconnect).
15 Isolating fuel supply.
16 Removal of object involved in fire from building etc.
17 Buckets of water. Include Bucket pump.
18
19 By Occupier other than provided for.

2. FIRE SERVICE USING BUILDING FACILITY

21 Garden Hose.
22 Portable Extinguisher (all types).
23 Fixed hose reel.
24 Fixed installations for Brigade operation only. Excluded are sprinkler, dry chemical, vapourising liquid, and automatic high expansion foam systems.
29. Service using facility other than provided for.

3. FIRE SERVICE : SERVICE OWNED AND OPERATED EQUIPMENT

31 CO^2 extinguisher.
32 Dry chemical extinguisher.
33 Vapourising liquid extinguisher.
34 Expelled Water Extinguisher (all types).
35 Bucket pump/
36 1 - Low pressure hose reel (normal operating pressure) under 1 000 kpa.
Except when using for AFFF application (Code 52).
37 1 - High pressure hose reel (normal operating pressure) in excess of 1 000 kpa.
Except when using for AFFF applicaiton (Code 52).
39 2 - Low pressure hose reels (normal operating pressure).
30 Under 1 000 kpa and above in 36.

4. FIRE SERVICE USING OWN HOSE DELIVERIES FROM RETICULATION SYSTEMS, OPEN WATER, AND TANKERS

41 1 - Delivery.
42 2 - Deliveries.
43 3 - Deliveries.
44 4 - Deliveries.
45 5 - Deliveries.
46 6 - Deliveries.
47 7 - Deliveries
48 8 - Deliveries
49 9 - Delivereis
40 Deliveries used in exvess of table.

5. FIRE SERVICE USING SPEICAL EQUIPMENT

51 Mechanical foam generating equipment (Protein base only).
52 Mechanical foam generating equipment (AFFF concentrate only).
53 Medium expansion foam generator.
54 High expansion foam generator.
55 Portable ground monitor.
56 Fixed appliance monitor.
59 Service using other speical extinguishing equipment not provided for.

6. FIRE SERVICE USING MISCELLANEOUS METHODS

61 Isolating power supply.
Include disconnecting of batteries (mobile property).
62 Isolating fuel supply.
(Leaving residual fuel to burn off or evaporate).
63 Removal of material involved in fire.

7. EXTINGUISHED BY FIXED INSTALLATIONS

71 Sprinkler system.
72 Delung system.
73 CO^2 Installation.
Operation mode (automatic or manual).
74 Vapourising liquid installation.
Operation mode (automatic or manual).
75 Dry chemical installation.
Operation mode (automatic or manual).
76 Explosion suppression system.
77 Steam application system.
78 High expansion foam system.
79 Other type fixed installation not provided for.

8. MISCELLANEOUS MEANS

81 Self extinguished.
89 Other miscellaneous means not provided for.

9. NO EQUIPMENT USED

APPENDIX K COMPUTER PROGRAMS FOR EXPERIMENT

```
100     BEGIN                                                                   00000100  ??????????
200      FILE INN(KIND=DISK,FILETYPE=7);                                        00000200
210      FILE OUT(KIND=DISK, MAXRECSIZE=12, BLOCKSIZE=300) ;                    00000210
300     REAL  ARRAY ADDRESSBUF[0:6],ADDRESS[0:6,0:300] ;                        00000300  ??????????
400     INTEGER  ARRAY CALL[0:19,0:300],PROP[0:12,0:150],BUF[0:97];             00000400  ??????????
500          APP[0:900],BAKUP[0:300] ;                                          00000500
600     DEFINE  ADDRESSNUM=ADDRESS[0,0] #,                                      00000600  ??????????
700             COUNT=CALL[0,0] #,                                              00000700
800          PROPPTR=PROP[0,0] #,                                               00000800  ??????????
900             APPTR=APP[0] #,                                                 00000900  ??????????
1000         BAKPTR=BAKUP[0] # ;                                                00001000  ??????????
1100    INTEGER  CARD,CALLNO1,CALLNO2,CALLNO3,I,J,K,N;                          00001100
1200    DEFINE UPTO = STEP 1 UNTIL # ,                                          00001200  ??????????
1300       BUFF(I,J)=FOR N:=1 UPTO J DO BUF[N] # ;                              00001300
1350     INTEGER PROCEDURE YESNOOF(LETTER); INTEGER LETTER ; FORWARD ;           00001350
1400    INTEGER PROCEDURE PROPERTY ;                                            00001400  ??????????
1500    BEGIN INTEGER L,I ;                                                     00001500  ??????????
1600     L := PROPPTR := +1 ;                                                   00001600
1700    PROP[0,L]:=K;                                                           00001700  ??????????
1800    FOR I:=1,2,3,4,6,9,10,11,12 DO PROP[I,L] :=BUF[I+56] ;                  00001800  ??????????
1900    FOR I:=5,7,8 DO PROP[I,L]:=YESNOOF(BUF[I+56]) ;                         00001900  ??????????
2000    PROPERTY := L ;                                                         00002000  ??????????
2100    END OF PROPERTY ;                                                       00002100  ??????????
2200    INTEGER PROCEDURE YESNOOF(LETTER) ;                                     00002200  ??????????
2300    INTEGER LETTER ;                                                        00002300  ??????????
2400    BEGIN                                                                   00002400  ??????????
2500      YESNOOF:=IF LETTER EQL "Y" THEN 1 ELSE 0 ;                            00002500  ??????????
2600    END OF YESNO OF ;                                                       00002600  ??????????
2700    PROCEDURE FILEIT ;                                                      00002700  ??????????
2800    BEGIN                                                                   00002800  ??????????
2900    INTEGER I ;  K:=COUNT := +1 ;                                           00002900
3000    CALL[0,K]:=BUF[1];                                                      00003000  ??????????
3100    CALL[1,K]:=BUF[2]*10000+BUF[3]*100+BUF[4];                              00003100  ??????????
3200    CALL[2,K]:=BUF[5] ;                                                     00003200  ??????????
3300    CALL[3,K]:=ADDRESSNUM:=+1 ;                                             00003300  ??????????
3400    FOR I:=0 UPTO 6 DO ADDRESS[I,ADDRESSNUM]:=ADDRESSBUF[I] ;               00003400  ??????????
3500    FOR I:=4,5,7,8,9,10 DO CALL[I,K]:=BUF[I+2];                             00003500  ??????????
3600    CALL[6,K]:=YESNOOF(BUF[8]);                                             00003600  ??????????
3700    I:=13 ; CALL[11,K]:=APPTR+1 ;                                           00003700  ??????????
3800    DO BEGIN APP[APPTR:=+1]:=BUF[I]*10+BUF[I+1] ;                           00003800  ??????????
3900             I:=+2 ; END  UNTIL  BUF[I] EQL 0 ;                             00003900  ??????????
4000    APP[APPTR:=+1]:=99 ;                                                    00004000  ??????????
4100    CALL[13,K]:=IF BUF[51] EQL "Y" THEN PROPERTY ELSE 0 ;                   00004100  ??????????
4200    FOR I:=12,14,15,16,17,18 DO CALL[I,K]:=BUF[I+38];                       00004200  ??????????
4300    IF BUF[69] NEQ 0 THEN                                                   00004300  ??????????
4400    BEGIN                                                                   00004400  ??????????
4500    I:=69 ; CALL[19,K]:=BAKPTR+1 ;                                          00004500  ??????????
4600    DO BEGIN BAKUP[BAKPTR:=+1]:=BUF[I]*10000+BUF[I+1]*100+BUF[I+2] ;        00004600  ??????????
4700             I:=+3 ; END UNTIL BUF[I] EQL 0 ;                               00004700  ??????????
4800    BAKUP[BAKPTR:=+1]:=99 ;                                                 00004800  ??????????
4900    END                                                                     00004900  ??????????
5000    END OF FILEIT ;                                                         00005000  ??????????
5100    DEFINE FIRSTCARD=READ(INN,<I1,I4,I2,2(X1,I2),I4,6A6,A4,2I2,A1,2I1,2I2>,  00005100  ??????????
5200                          CARD,BUFF(I,5),ADDRESSBUF[*],BUFF(6,12)) # ;      00005200  ??????????
5220     REAL  ARRAY  NAME[0:9] ;                                               00005220
5250     READ(INN,<10A6>,NAME[*]); WRITE(OUT,<10A6>,NAME[*])                    00005250
5300    WHILE NOT FIRSTCARD DO                                                  00005300  ??????????
5400    BEGIN                                                                   00005400  ??????????
5500    IF CARD NEQ 1 THEN DO FIRSTCARD UNTIL CARD EQL 1 ;                      00005500  ??????????
5600    CALLNO1 := BUF[1] ;                                                     00005600  ??????????
5700    READ(INN,<I1,I4,18(I1,X1,I1)>,CARD,CALLNO2,BUFF(13,48)) ;               00005700  ??????????
5800    IF CARD EQL 2 AND CALLNO2 EQL CALLNO1 THEN                              00005800  ??????????
5900    BEGIN                                                                   00005900  ??????????
6000    READ(INN,<I1,I4,I2,A1,I1,I2,I1,3I2,I4,2I1,A1,I2,2A1,3I1,I2,9(I1,X1,    00006000
6100         I1,X1,I1)>,CARD,CALLNO3,BUFF(50,95)) ;                             00006100  ??????????
6200    IF CARD EQL 3 AND CALLNO3 EQL CALLNO1 THEN FILEIT ;                     00006200  ??????????
6201     END;                                                                   00006201
6204     END;                                                                   00006204
6210     FOR I:=0 UPTO 300 DO                                                   00006210
6220     WRITE(OUT,<2I6,I4,17I3>,FOR J:=0 UPTO 19 DO CALL[J,I]);                00006220
6230     FOR I:=0 UPTO 150 DO                                                   00006230
6240      WRITE(OUT,<3I4,10I2>,FOR J:=0 UPTO 12 DO PROP[J,I]) ;                 00006240
6250    FOR I:=0,1 STEP 10 UNTIL 891 DO                                         00006250
6260      WRITE(OUT,<10I5>,FOR J:=I UPTO I+9 DO APP[J]);                        00006260
```

```
6499      LOCK(OUT));                                    00006499
6500      END.                                           00006500  ??????????
```

```
100   BEGIN                                                                                    00000100  ??????????
200   % PROGRAM  F/REPORTER                                                                    00000200  ??????????
300   FILE INN(KIND=DISK,FILETYPE=7), INE(KIND=DISK,FILETYPE=7) ;                              00000300  ??????????
400   FILE OUT(KIND=REMOTE,MAXRECSIZE=22) ;                                                    00000400  ??????????
500   INTEGER I,J,K,M ;                                                                        00000500  ??????????
600   INTEGER ARRAY CALL[0:19,0:300] , PROP[0:12,0:150] ;                                      00000600  ??????????
700   ARRAY  TITLE[0:24,0:12],CODE[0:75,0:5] ;                                                 00000700  ??????????
800   REAL  ARRAY  ADDRESS[0:6,0: 300], NAME[0:9] ;                                            00000800  ??????????
900   INTEGER  ARRAY  APP[0:900] ;                                                             00000900
1000  DEFINE UPTO = STEP 1 UNTIL # ;                                                           00001000  ??????????
1100  DEFINE  PRINTTITLE(I)=                                                                   00001100  ??????????
1200      BEGIN  WRITE(OUT [SPACE 6]);                                                         00001200
1300        WRITE(OUT,<X21,13C6>,TITLE[I,*]);                                                  00001300  ??????????
1400        WRITE(OUT [SPACE 4],<X21,13C6>,TITLE[I+1,*]); END # ;                              00001400  ??????????
1500  PROCEDURE STRUCTURE ;                                                                    00001500  ??????????
1600  BEGIN                                                                                    00001600  ??????????
1700  INTEGER ARRAY OCCUPY,PERCENT,EQUIP,HEAT[0:9],EXTENT[0:6] ;                               00001700  ??????????
1800  INTEGER I,J ;                                                                            00001800  ??????????
1802  INTEGER P,Q,R,S;                                                                         00001802
1900  DEFINE CODELINE(I,J,M,A)= FOR K:=I UPTO J DO                                             00001900  ??????????
2000      WRITE(OUT,<X1,6C6,X5,I5>,CODE[K+M,*],A[K]) # ;                                       00002000  ??????????
2100  FOR I:=1 UPTO PROP[0,0] DO                                                               00002100  ??????????
2200  BEGIN                                                                                    00002200  ??????????
2300    OCCUPY[PROP[3,I]]:=+1 ;                                                                00002300  ??????????
2400    EXTENT[PROP[11,I]]:=+1 ;                                                               00002400  ??????????
2500    PERCENT[PROP[12,I]/11]:=+1 ;                                                           00002500  ??????????
2600    EQUIP[PROP[9,I]]:=+1 ;                                                                 00002600  ??????????
2700  HEAT[PROP[10,I]]:=+1 ;                                                                   00002700  ??????????
2702  P:=+PROP[5,I];IF PROP[6,I] GTR 0 THEN Q:=+1 ;                                            00002702
2704  R:=+PROP[7,I];S:=+PROP[8,I];                                                             00002704
2800  END ;                                                                                    00002800  ??????????
2900  WRITE(OUT [SKIP 1]); PRINTTITLE(1) ; PRINTITLE(3) ;                                      00002900  ??????????
3000  CODELINE(1,9,0,OCCUPY) ;                                                                 00003000  ??????????
3100  PRINTTITLE(5) ; CODELINE(1,6,9,EXTENT) ; WRITE(OUT,<///,X2>) ;                           00003100  ??????????
3200  CODELINE(0,9,16,PERCENT) ;  WRITE(OUT [SKIP 1]) ;                                        00003200
3300  PRINTTITLE(7) ; CODELINE(0,9,26,EQUIP) ;                                                 00003300  ??????????
3400  PRINTTITLE(9) ;CODELINE(1,9,35,HEAT) ;                                                   00003400  ??????????
3402    WRITE(OUT [SPACE 6]);                                                                  00003402
3404  WRITE(OUT,<X21,"AUTOMATIC  DEVICES",/,X21,                                               00003404
3406    "----------  -------",//>);                                                            00003406
3408  WRITE(OUT,<X20,"% WITH SPRINKLERS",X5,I6,X10,                                            00003408
3410    "% THAT OPERATED",111>,(P*100)/PROP[0,0],(Q*100)/PROP[0,0]);                           00003410
3412  WRITE(OUT,<//,X20,"% WITH DETECTORS",X6,I6>,(R*100)/PROP[0,0]);                          00003412
3414  WRITE(OUT,<//,X20,"% WITH OTHER FIXED INST.",I4>,(S*100)/PROP[0,0]);                     00003414
3500  END OF STRUCTUE ;                                                                        00003500  ??????????
3600  PROCEDURE  ALARMS ;                                                                      00003600  ??????????
3700  BEGIN                                                                                    00003700  ??????????
3800    INTEGER  I,J,K,L,I1,I2,I3,I4,MAX, STAT, ALRM, SIT, APL, ACTN ;                         00003800  ??????????
3900    INTEGER  ARRAY  RESULT1[0:15,0:8], RESULT2[0:17,0:10] ,                                00003900  ??????????
4000                    RES1[0:5] , RES2[0:8] ;                                              00004000  ??????????
4100    DEFINE  SUM(A) =  BEGIN                                                              00004100  ??????????
4200                      FOR J:=0,1,2,3 DO A[4,I]:=+A[J,I] ;                                00004200  ??????????
4300                      FOR J:=5,6,7 DO A[8,I]:=+A[J,I] ;                                  00004300  ??????????
4400                      FOR J:=9,10,11,12,13 DO A[14,I]:=+A[J,I] ;                         00004400  ??????????
4500                      A[15,I]:= A[4,I]+A[8,I]+A[14,I] ;                                  00004500  ??????????
4600                      END  # ;                                                           00004600  ??????????
4700  DEFINE  CODELINE(I1, I2, I3,I4,A) =  WRITE(OUT,<X1,6C6>,CODE[I1,*]);                   00004700  ??????????
4800    FOR I:=I2 UPTO I3 DO  WRITE(OUT,<X1,3C6,I1[8]>,FOR J:=0,1,2 DO                       00004800  ??????????
4900      CODE[11-I2+1+I,J], FOR L:=0 UPTO I4 DO A[I,L]) # ;                                 00004900  ??????????
5000  MAX := CALL[0,0] ;   I1:= 1 ;                                                           00005000  ??????????
5100  DO  BEGIN                                                                              00005100  ??????????
5200      STAT:=CALL[5,I]-1 ;                                                                00005200  ??????????
5300      ALRM:= CALL[7,I]-1 ;                                                               00005300  ??????????
5400      SIT:=CALL[12,I] ;                                                                  00005400  ??????????
5500      APL:=CALL[11,I] ;                                                                  00005500  ??????????
5600      ACTN:=CALL[14,I] -1 ; IF ACTN LSS 0 THEN ACTN:=8 ;                                 00005600
5700      CASE  SIT  OF                                                                      00005700  ??????????
5800       BEGIN                                                                             00005800  ??????????
5900        11: K:=9; 12: K:=10 ; 13: K:=11; 14:K:=12; 19: K:=13;                            00005900  ??????????
6000        30: K:=5; 40: K:=6; 50: K:=7; 60: K:=0 ;                                         00006000  ??????????
6100        71: K:=1; 73: K:=2; 74: K:=3 ;                                                   00006100  ??????????
6200       END ;                                                                             00006200  ??????????
6300      RES1[K] :=+1 ;                                                                     00006300  ??????????
6400      RES2[ACTN] := +1 ;                                                                 00006400  ??????????
```

```
6500        RESULT1[K,ALRM] != **1 ;                                                    00006500  ??????????
6600        RESULT2[K,STAT] != **1 ;                                                    00006600  ??????????
6700        FOR I:=0 UPTO STAT-1,STAT+1 UPTO 10 DO                                      00006700  ??????????
6800          BEGIN                                                                     00006800  ??????????
6900          J:=APL ;                                                                  00006900  ??????????
7000          DO IF L:=APP[J]/11 EQL I:+1 THEN RESULT2[16,I]:=**1                       00007000
7100            UNTIL APP[J:=**1] EQL (-99) OR L EQL I:+1 ;                             00007100
7200          END ;                                                                     00007200  ??????????
7300        I:=**1 ;   END  UNTIL  I GTR MAX ;                                          00007300  ??????????
7400    FOR  I:=0 UPTO  8 DO SUM( RESULT1 ) ;                                           00007400  ??????????
7500    FOR I:=0 UPTO 10 DO  BEGIN  SUM( RESULT2 ) ;                                    00007500  ??????????
7600                         RESULT2[17,I]:=RESULT2[15,I]+RESULT2[16,I] ; END ;         00007600  ??????????
7602    RES1[4]:=RES1[0]+RES1[1]+RES1[2]+RES1[3];                                       00007602
7604    RES1[8]:=RES1[5]+RES1[6]+RES1[7];                                               00007604
7606    RES1[14]:=RES1[9]+RES1[10]+RES1[11]+RES1[12]+RES1[13];                          00007606
7608    RES1[15]:=RES1[4]+RES1[8]+RES1[14];                                             00007608
7700    WRITE(OUT [SKIP 1]) ;   PRINTTITLE(1) ; PRINTTITLE(13) ;                       00007700  ??????????
7800    WRITE(OUT,<X1,6C6>,CODE[45,*]); FOR I:=1,2,3,4,5 DO                             00007800
7900      WRITE(OUT,<X1,3C6,I8>,FOR J:=0,1,2 DO CODE[45+I,J],RES1[I-1]);                00007900
7902    WRITE(OUT,<X1,6C6>,CODE[51,*]); FOR I:=6,7,8,9 DO                               00007902
7904      WRITE(OUT,<X1,3C6,I8>,FOR J:=0,1,2 DO CODE[46+I,J],RES1[I-1]);                00007904
7906    WRITE(OUT,<X1,6C6>,CODE[56,*]); FOR I:=10 UPTO 16 DO                            00007906
7908      WRITE(OUT,<X1,3C6,I8>,FOR J:=0,1,2 DO CODE[47+I,J],RES1[I-1]);                00007908
8000    WRITE(OUT [SKIP 1]) ;  PRINTTITLE(15) ;                                         00008000  ??????????
8100    FOR I:=0 UPTO 8 DO  WRITE(OUT,<X1,3C6,I8>,FOR J:=0,1,2 DO                       00008100  ??????????
8200                        CODE[6C+I,J], RES2[I]) ;                                    00008200  ??????????
8300    WRITE(OUT [SKIP 1]) ;    PRINTTITLE(17) ;  PRINTTITLE(19) ;                     00008300  ??????????
8400    CODELINE(45,0,4,8,RESULT1) ;                                                    00008400  ??????????
8500    CODELINE(51,5,8,8,RESULT1) ;                                                    00008500  ??????????
8600    CODELINE(56,9,15,8,RESULT1) ;                                                   00008600  ??????????
8700    WRITE(OUT [SKIP 1 1]) ;  PRINTTITLE(21) ;  PRINTTITLE(23) ;                     00008700  ??????????
8800    CODELINE(45,0,4,10,RESULT2) ;                                                   00008800  ??????????
8900    CODELINE(51,5,8,10,RESULT2) ;                                                   00008900  ??????????
9000    CODELINE(56,9,15,10,RESULT2) ;                                                  00009000  ??????????
9100    WRITE(OUT,<X1,3C6,11I6>,FOR J:=0,1,2 DO CODE[64,J],RESULT2[16,*]);              00009100
9200    WRITE(OUT,<X1,3C6,11I6>,FOR J:=0,1,2 DO CODE[65,J],RESULT2[17,*]);              00009200
9300    END OF ALARMS ;                                                                 00009300  ??????????
9400    READ(INN,<10A6>,NAME[*]) ;        WRITE(OUT [SKIP 1]) ;                         00009400  ??????????
9450      WRITE(OUT [SPACE 10]) ;                                                       00009450
9500    WRITE(OUT ,<X30,"CHRISTCHURCH  FIRE  SERVICE",/,X30,                            00009500
9600        12("="),"  ====  ",7("="),/////>) ;                                         00009600
9700    WRITE(OUT [SPACE 4] ,<X25,10A6>,NAME[*]) ;                                      00009700  ??????????
9800    FOR I:=0 UPTO 300 DO                                                            00009800  ??????????
9900    READ(INN,<2I6,I4,17I3>,FOR J:=0 UPTO 19 DO CALL[J,I]) ;                         00009900  ??????????
10000   FOR I:=0 UPTO 150 DO                                                            00010000  ??????????
10100   READ(INN,<3I4,10I2>,FOR J:=0 UPTO 12 DO PROP[J,I]);                             00010100  ??????????
10200   FOR I:=0,1 STEP 10 UNTIL 891 DO                                                 00010200
10300     READ(INN,<10I5>,FOR J:=I UPTO I+9 DO APP[J]) ;                                00010300  ??????????
10600   FOR I:=1 UPTO  24 DO                                                            00010600  ??????????
10700   READ(INF,<13C6>,FOR J:=0 UPTO 12 DO TITLE[I,J]);                                00010700  ??????????
10800   FOR I:=1 UPTO 74 DO                                                             00010800
10900   READ(INF,<6C6>,FOR J:=0 UPTO 5 DO CODE[I,J]) ;                                  00010900  ??????????
11000    STRUCTURE ;                                                                    00011000  ??????????
11100   ALARMS ;                                                                        00011100  ??????????
11200   END.                                                                            00011200  ??????????
```

APPENDIX L COMPUTER REPORTS FROM EXPERIMENT

CHRISTCHURCH FIRE SERVICE

MONTHLY REPORT FOR JAN/77 DATE: 10/10/77

STRUCTURE FIRES

OCCUPANCY TYPE

PUBLIC ASSEMBLY	3
EDUCATIONAL	0
INSTITUTIONAL	0
RESIDENTIAL	21
OFFICE, STORE	1
BASIC INDUSTRY	0
MANUFACTURING	6
STORAGE	2
OTHER	3

EXTENT OF DAMAGE

FIRE CONFINED TO OBJECT OF ORIGIN	2
PART OF ROOM	10
ROOM OF ORIGIN	7
FLOOR OF ORIGIN	1
BUILDING OF ORIGIN	15
EXTENDED BEYOND BUILDING OF ORIGIN	1

% OF DAMAGE TO UNIT: 0-10	27
11-20	1
21-30	1
31-40	1
41-50	0
51-60	2
61-70	0
71-80	1
81-90	1
91-100	2

EQUIPMENT INVOLVED

NONE	10
HEATING	2
COOKING	4
REFRIGERATION	0
ELEC. SWITCHES ETC	3
ELEC. APPLIANCES	3
SPECIAL EQUIP.	0
PROCESSING	2
SERVICE	3
OTHER	9

HEAT SOURCE

FUEL-FIRED OBJECT	1
ELEC. EQUIPMENT	4
SMOKING MATERIALS	1
FLAME, SPARK	18
HOT OBJECT	8
EXPLOSIVE	0
NATURAL SOURCE	0
EXPOSURE FIRE	0
OTHER	1

AUTOMATIC DEVICES

% WITH SPRINKLERS	6	% THAT OPERATED	3
% WITH DETECTORS	6		
% WITH OTHER FIXED INST.	0		

INCIDENT SUMMARY

INCIDENT TYPE

FALSE ALARM	
-GOOD INTENT	37
-MALICIOUS	15
-DEF. APP.	51
-ACCIDENTAL	15
-TOTAL	118
SPECIAL SERVICE	
-RESCUE	1
-HAZ. COND.	10
-OTHER	5
-TOTAL	16
FIRE	
-STRUCTURE	33
-CHIMNEY	2
-OVEN	5
-SCRUB	43
-OTHER	19
-TOTAL	102
TOTAL CALLS	236

ACTION TAKEN	
EXTINGUISHMENT	93
RESCUE	1
INVESTIGATION	116
REMOVE HAZARD	10
STANDBY	4
SALVAGE	1
AMBULANCE SERVICE	0
TRANSFER	0
OTHER	11

ALARM TYPE BY INCIDENT TYPE

	111 CALL	O/111 CALL	EXCHANGE PHONE	PF PHONE	PFA (AUTO)	PFA (MAN.)	STREET ALARM	RADIO	OTHER
FALSE ALARM									
-GOOD INTENT	18	0	9	3	5	0	2	0	0
-MALICIOUS	12	0	0	0	3	0	0	0	0
-DEF. APP.	0	0	1	0	50	0	0	0	0
-ACCIDENTAL	0	0	0	0	15	0	0	0	0
-TOTAL	30	0	10	3	73	0	2	0	0
SPECIAL SERVICE									
-RESCUE	0	0	0	0	0	0	0	0	1
-HAZ. COND.	4	0	3	2	0	0	0	0	1
-OTHER	3	0	0	2	0	0	0	0	0
-TOTAL	7	0	3	4	0	0	0	0	2
FIRE									
-STRUCTURE	28	0	3	2	0	0	0	0	0
-CHIMNEY	1	0	1	0	0	0	0	0	0
-OVEN	4	0	1	0	0	0	0	0	0
-SCRUB	22	0	16	4	0	0	0	1	0
-OTHER	18	0	0	0	1	0	0	0	0
-TOTAL	73	0	21	6	1	0	0	1	0
TOTAL CALLS	110	0	34	13	74	0	2	1	2

STATION ATTENDANCE BY INCIDENT TYPE

	1	2	3	4	5	6	7	8	9	10
FALSE ALARM										
-GOOD INTENT	12	8	1	1	6	8	1	0	0	0
-MALICIOUS	3	0	5	1	4	0	1	0	1	0
-DEF. APP.	30	6	1	5	5	2	1	1	0	0
-ACCIDENTAL	6	3	0	2	3	1	0	0	0	0
-TOTAL	51	17	7	9	18	11	3	1	1	0
SPECIAL SERVICE										
-RESCUE	0	0	1	0	0	0	0	0	0	0
-HAZ. COND.	7	1	0	0	1	0	0	0	1	0
-OTHER	2	0	1	1	1	0	0	0	0	0
-TOTAL	9	1	2	1	2	0	0	0	1	0
FIRE										
-STRUCTURE	11	4	4	3	7	1	1	0	2	0
-CHIMNEY	0	0	2	0	0	0	0	0	0	0
-OVEN	0	0	2	1	2	0	0	0	0	0
-SCRUB	9	8	3	4	7	7	2	1	1	1
-OTHER	4	5	2	1	4	0	2	0	0	0
-TOTAL	24	17	13	9	20	8	5	1	3	1
TOTAL CALLS	84	35	22	19	40	19	8	2	5	1
SUPPORT CALLS	58	15	21	18	9	28	3	5	0	0
ALL ATTANDANCES	142	50	43	37	49	47	11	7	5	1

CHRISTCHURCH FIRE SERVICE

MONTHLY REPORT FOR FEB/77 DATE: 20/10/77

STRUCTURE FIRES

OCCUPANCY TYPE

PUBLIC ASSEMBLY	0
EDUCATIONAL	0
INSTITUTIONAL	0
RESIDENTIAL	15
OFFICE, STORE	1
BASIC INDUSTRY	0
MANUFACTURING	5
STORAGE	5
OTHER	1

EXTENT OF DAMAGE

FIRE CONFINED TO OBJECT OF ORIGIN	8
PART OF ROOM	3
ROOM OF ORIGIN	7
FLOOR OF ORIGIN	1
BUILDING OF ORIGIN	8
EXTENDED BEYOND BUILDING OF ORIGIN	0

% OF DAMAGE TO UNIT: 0-10	21
11-20	2
21-30	0
31-40	1
41-50	2
51-60	1
61-70	0
71-80	0
81-90	1
91-100	1

EQUIPMENT INVOLVED

NONE	12
HEATING	0
COOKING	5
REFRIGERATION	0
ELEC. SWITCHES ETC	2
ELEC. APPLIANCES	3
SPECIAL EQUIP.	0
PROCESSING	3
SERVICE	3
OTHER	1

HEAT SOURCE

FUEL-FIRED OBJECT	0
ELEC. EQUIPMENT	5
SMOKING MATERIALS	6
FLAME, SPARK	6
HOT OBJECT	6
EXPLOSIVE	0
NATURAL SOURCE	0
EXPOSURE FIRE	0
OTHER	2

AUTOMATIC DEVICES

% WITH SPRINKLERS	10	% THAT OPERATED	7
% WITH DETECTORS	7		
% WITH OTHER FIXED INST.	0		

INCIDENT SUMMARY

INCIDENT TYPE

FALSE ALARM	
-GOOD INTENT	53
-MALICIOUS	17
-DEF. APP.	50
-ACCIDENTAL	27
-TOTAL	147
SPECIAL SERVICE	
-RESCUE	0
-HAZ. COND.	3
-OTHER	2
-TOTAL	5
FIRE	
-STRUCTURE	23
-CHIMNEY	1
-OVEN	3
-SCRUB	53
-OTHER	17
-TOTAL	97
TOTAL CALLS	249

ACTION TAKEN

EXTINGUISHMENT	93
RESCUE	0
INVESTIGATION	150
REMOVE HAZARD	2
STANDBY	2
SALVAGE	0
AMBULANCE SERVICE	0
TRANSFER	0
OTHER	2

ALARM TYPE BY INCIDENT TYPE

	111 CALL	O/111 CALL	EXCHANGE PHONE	PF PHONE	PFA (AUTO)	PFA (MAN.)	STREET ALARM	RADIO	OTHER
FALSE ALARM									
-GOOD INTENT	22	1	18	1	3	0	2	0	6
-MALICIOUS	12	0	4	0	1	0	0	0	0
-DEF. APP.	0	0	1	0	48	0	1	0	0
-ACCIDENTAL	0	0	0	0	27	0	0	0	0
-TOTAL	34	1	23	1	79	0	3	0	6
SPECIAL SERVICE									
-RESCUE	0	0	0	0	0	0	0	0	0
-HAZ. COND.	0	0	3	0	0	0	0	0	0
-OTHER	1	0	0	1	0	0	0	0	0
-TOTAL	1	0	3	1	0	0	0	0	0
FIRE									
-STRUCTURE	17	0	1	1	3	1	0	0	0
-CHIMNEY	0	0	0	0	0	0	0	0	1
-OVEN	2	0	1	0	0	0	0	0	0
-SCRUB	34	0	17	1	0	0	0	0	1
-OTHER	14	0	1	0	1	0	0	0	1
-TOTAL	67	0	20	2	4	1	0	0	3
TOTAL CALLS	102	1	46	4	83	1	3	0	9

STATION ATTENDANCE BY INCIDENT TYPE

	1	2	3	4	5	6	7	8	9	10
FALSE ALARM										
-GOOD INTENT	19	7	11	2	8	2	1	1	2	0
-MALICIOUS	3	1	1	4	1	5	2	0	0	0
-DEF. APP.	25	4	4	3	7	2	1	2	2	0
-ACCIDENTAL	12	0	3	3	4	4	0	1	0	0
-TOTAL	59	12	19	12	20	13	4	4	4	0
SPECIAL SERVICE										
-RESCUE	0	0	0	0	0	0	0	0	0	0
-HAZ. COND.	2	0	0	0	0	1	0	0	0	0
-OTHER	0	1	0	0	0	1	0	0	0	0
-TOTAL	2	1	0	0	0	2	0	0	0	0
FIRE										
-STRUCTURE	6	2	2	3	8	1	1	0	0	0
-CHIMNEY	1	0	0	0	0	0	0	0	0	0
-OVEN	0	0	2	0	1	0	0	0	0	0
-SCRUB	14	5	5	11	5	6	6	1	0	0
-OTHER	7	0	2	2	3	1	0	0	2	0
-TOTAL	28	7	11	16	17	8	7	1	2	0
TOTAL CALLS	89	20	30	28	37	23	11	5	6	0
SUPPORT CALLS	45	20	14	15	13	35	5	6	0	0
ALL ATTANDANCES	134	40	44	43	50	58	16	11	6	0

CHRISTCHURCH FIRE SERVICE

THE MONTHLY REPORT FOR MAR/77 DATE: 27/10/77

STRUCTURE FIRES

OCCUPANCY TYPE

PUBLIC ASSEMBLY	1
EDUCATIONAL	0
INSTITUTIONAL	1
RESIDENTIAL	21
OFFICE, STORE	3
BASIC INDUSTRY	0
MANUFACTURING	6
STORAGE	12
OTHER	3

EXTENT OF DAMAGE

FIRE CONFINED TO OBJECT OF ORIGIN	11
PART OF ROOM	13
ROOM OF ORIGIN	4
FLOOR OF ORIGIN	0
BUILDING OF ORIGIN	19
EXTENDED BEYOND BUILDING OF ORIGIN	1

% OF DAMAGE TO UNIT: 0-10	34
11-20	1
21-30	2
31-40	2
41-50	1
51-60	1
61-70	1
71-80	0
81-90	1
91-100	5

EQUIPMENT INVOLVED

NONE	24
HEATING	4
COOKING	5
REFRIGERATION	0
ELEC. SWITCHES ETC	5
ELEC. APPLIANCES	1
SPECIAL EQUIP.	0
PROCESSING	4
SERVICE	4
OTHER	1

HEAT SOURCE

FUEL-FIRED OBJECT	0
ELEC. EQUIPMENT	7
SMOKING MATERIALS	8
FLAME, SPARK	20
HOT OBJECT	9
EXPLOSIVE	0
NATURAL SOURCE	2
EXPOSURE FIRE	1
OTHER	1

AUTOMATIC DEVICES

% WITH SPRINKLERS	2	% THAT OPERATED	0
% WITH DETECTORS	8		
% WITH OTHER FIXED INST.	0		

INCIDENT SUMMARY

INCIDENT TYPE

FALSE ALARM	
-GOOD INTENT	60
-MALICIOUS	12
-DEF. APP.	52
-ACCIDENTAL	15
-TOTAL	139
SPECIAL SERVICE	
-RESCUE	2
-HAZ. COND.	0
-OTHER	0
-TOTAL	2
FIRE	
-STRUCTURE	43
-CHIMNEY	3
-OVEN	10
-SCRUB	94
-OTHER	32
-TOTAL	182
TOTAL CALLS	323

ACTION TAKEN	
EXTINGUISHMENT	172
RESCUE	0
INVESTIGATION	147
REMOVE HAZARD	0
STANDBY	2
SALVAGE	0
AMBULANCE SERVICE	0
TRANSFER	0
OTHER	2

ALARM TYPE BY INCIDENT TYPE

	111 CALL	O/111 CALL	EXCHANGE PHONE	PF PHONE	PFA (AUTO)	PFA (MAN.)	STREET ALARM	RADIO	OTHER
FALSE ALARM									
-GOOD INTENT	30	0	20	5	4	0	0	0	1
-MALICIOUS	7	0	2	0	3	0	0	0	0
-DEF. APP.	1	0	0	0	51	0	0	0	0
-ACCIDENTAL	1	0	0	0	14	0	0	0	0
-TOTAL	39	0	22	5	72	0	0	0	1
SPECIAL SERVICE									
-RESCUE	1	0	0	1	0	0	0	0	0
-HAZ. COND.	0	0	0	0	0	0	0	0	0
-OTHER	0	0	0	0	0	0	0	0	0
-TOTAL	1	0	0	1	0	0	0	0	0
FIRE									
-STRUCTURE	39	0	1	0	3	0	0	0	0
-CHIMNEY	1	0	1	1	0	0	0	0	0
-OVEN	10	0	0	0	0	0	0	0	0
-SCRUB	63	0	20	6	1	0	0	3	1
-OTHER	29	0	2	1	0	0	0	0	0
-TOTAL	142	0	24	8	4	0	0	3	1
TOTAL CALLS	182	0	46	14	76	0	0	3	2

STATION ATTENDANCE BY INCIDENT TYPE

	1	2	3	4	5	6	7	8	9	10	
FALSE ALARM											
-GOOD INTENT	16	12	8	7	7	3	2	2	3	0	0
-MALICIOUS	4	0	1	3	3	0	1	0	0	0	0
-DEF. APP.	28	3	4	3	11	2	0	0	1	0	0
-ACCIDENTAL	6	3	0	0	2	4	0	0	0	0	0
-TOTAL	54	18	13	13	23	9	3	2	4	0	0
SPECIAL SERVICE											
-RESCUE	1	0	0	0	0	0	0	0	1	0	0
-HAZ. COND.	0	0	0	0	0	0	0	0	0	0	0
-OTHER	0	0	0	0	0	0	0	0	0	0	0
-TOTAL	1	0	0	0	0	0	0	0	1	0	0
FIRE											
-STRUCTURE	13	10	6	0	3	0	6	2	2	0	1
-CHIMNEY	1	0	0	1	1	0	0	0	0	0	0
-OVEN	3	3	0	0	1	2	0	0	0	0	0
-SCRUB	12	13	9	12	15	14	12	1	3	0	3
-OTHER	12	5	4	3	4	3	0	1	0	0	0
-TOTAL	41	31	19	16	24	18	20	4	5	0	4
TOTAL CALLS	96	49	32	29	47	27	23	6	10	0	4
SUPPORT CALLS	78	16	16	20	10	51	6	11	0	0	0
ALL ATTANDANCES	174	65	48	49	57	78	29	17	10	0	4

APPENDIX M N.Z. FIRE COMMISSION PROPOSED REPORT FORMS

NEW ZEALAND FIRE SERVICE COMMISSION

PO BOX 2133 WELLINGTON

PROVISIONAL VERSION 3.01 SEPT

DIVISION

FILE/SYSTEM

FIRE SAFETY

INCIDENT REPORT

VOLUNTEER AND ASSISTING BRIGADE COMPLETE THIS COLUMN ONLY.

ZFS 121 } REPLACES

A.B.C. PROPERTY TYPE (OCCUPANCY)

A(point)B; B; or B(point) C :

Address of incident:

KAA Brigade; Station (point) Incident No. :

KAB Time; date (International DTG) of call :

KAC Metric Map Sheet Number :

KAC Metric Map Reference:

WRITE YOUR NUMBERS LIKE THIS

D Type of Construction

D Year of Construction

D Area of Structure, m^2

D Property Management

EA Area of origin

EB Floor of origin

EC Occupant of space at time of ignition

F Equipment involved in ignition

G Form of heat of ignition

H Type of material first ignited

I Form of material first ignited

J Act or omission causing ignition

KB Condition of fire first unit arrival

KCA Most significant flame spread factor

KCB Structural factor allowing vertical spread

KCC Structural factor horizontal spread

KCD Building contents allowing flame spread

KCE Most significant avenue of smoke spread

KDA Method of detection

KEA Delay in alarm transmission

KEB Delay in arrival

KEC Time; alarm to extinguishant applied

KED Delay in application of extinguishant

KFA Performance; Fire detection equipment

KFB Performance; fixed auto-installations

KFC Performance; spread limitation devices

KGA Type of weather

KGB Air temperature

KGC Relative humidity

KGD Wind direction

KGE Wind speed

LAA Flame damage to total structure

LAB Flame damage confined to

LAC Non-flame damage to total structure

LAD Non-flame damage confined to

LBA Number of persons made homeless

LBB Number of businesses made unuseable

LBC Lost time of business(es)

LCA Number of persons assisted from fire (by FS)

LCB Number of persons assisted from fire by public

LCD Injuries total

LCE Deaths total at incident

KAD In or out of fire district

KAE District calling for reinforcements

KAF Running time in minutes

KAG Alarm transmitted by

KAH Type of incident

KAJ Type of action taken

KAJ Fire & Rescue equipment used

KAK APPLIANCES:-

Responding:				Used:			
SP	PP			SP	PP		
WT	AA			WT	AA		
HL	ET			HL	ET		
FT	OT			FT	OT		

KAL PERSONNEL:-

(A) Responding to call (B) Attending incident

(F) Officers (M) Men (F) Officers (M) Men

(S) Permanent Staff

SAF	SAM	SBF	SBM

(X) Auxiliaries

XAF	XAM	XBF	XBM

(V) Volunteers

VAF	VAM	VBF	VBM

(P) Fire Police

PAF	PAM	PBF	PBM

KAM Time brigade involved Hrs & mins

KAN Total man hours

FIELD OFFICER STAFF NO:

CODING OFFICER STAFF NO:

ZFS SYSTEMS INTERFACE Property Register Number FS 111/ (See Code line 05)

FORMATTED 12-01

NEW ZEALAND FIRE SERVICE

:INCIDENT REPORT ZFS.

Name of Occupier:

Address of Owner:

Description of Property:

Property Classification (Complex):

Property Classification (Individual):

Property Classification (Transport):

Year of Construction/Manufacture:

Type of Construction:

No. of Floors:

Floor of Origin:

Area of Origin:

Equipment Involved in Ignition:

Type of Material First Ignited:

Form of Material First Ignited:

Details of Fixed Installations:

Supposed Cause:

First Appliance in Attendance Time:

Significant Flame Spread By:

Structural Factor (Vertical Spread):

Structural Factor (Horizontal Spread):

Other Factors Involved in Fire Spread:

Significant Factor (Smoke Spread):

% Flame Damage to Total Structure:

Flame Damage Confined To:

% Non-Flame Damage to Total Structure:

Non-Flame Damage Confined To:

Number of People Made Homeless:

Number of Businesses Made Unusable:

Number of People Rescued By - Fire Service:
- Public:

Total No. of Civilians Injuried:

Total No. of Fire Fighters Injured:

Total No. of Civilian Deaths At Incident:

Total No. of Fire Fighter Deaths at Incident:

Building Register Number:

Local Authority Number:

Information To Follow: YES ☐ NO ☐

Call

Cod

Out ☐ Of Fire District

No. Attending:

No. Used:

APPENDIX N COMMUNICATION WITH THE FIRE SERVICE AND OTHERS

APPENDIX N COMMUNICATIONS WITH THE FIRE SERVICE AND OTHERS

The project involved regular discussions with the Christchurch Fire Service. These discussions involved the Station Officers and firemen of "Blue Watch" of the central Christchurch Fire Station, especially Station Officer K. Wayman and Deputy Chief Fire Officer G. Roberts.

As well as these discussions there were periodic meetings throughout the year with various people and organisations involved with the Fire Service.

1. Deputy Chief Fire Officer G.R. Gray from the North Shore brigade visited the University (31 May) to look at the pilot mobilising system. He had been working on communications, mobilising and reporting in Auckland.

2. Fire Commissioner Hardy and the Area and Regional Commanders visited the University (24 June) to examine the mobilising system and discuss computerized mobilising and reporting.

3. Officers P. Clarke and M. Barker from the Fire Safety and Operations Division in Wellington came down to the University (11-12 July) for a two day seminar on mobilising and information retrieval.

4. In September I had a meeting with Mr I. Semple, Christchurch Fire Brigade Fire Safety Division to discuss what work they did and what their problems and requirements were.

5. Also in September I visited the Insurance Association of Christchurch in order to determine some form of construction code for buildings.

6. In October Mr K. Burton-Wood, the head of the Fire Safety Division of Commission, came to the University to investigate both the mobilising and reporting projects.

7. Subsequently on the 12th October Dr R.E.M. Cooper and I went up to Wellington where we talked to the service's Research Officer, Mr S. Elmer, Commissioner Henderson and investigated the operations of the Fire Safety Division of the Commission.

APPENDIX O A POSSIBLE INCIDENT REPORT FORM

ALL INCIDENTS

CALL NO: ____ TIME: ____ DATE: __/__/__ BRIGADE: --

ADDRESS:

OCCUPANT NAME:

OWNER NAME AND ADDRESS:

ALARM TRANSMISSION: __ HIGHEST ALARM LEVEL: _

TYPE OF INCIDENT: --

ACTION TAKEN: --

PERSONNEL: NUMBER OF PERMANENT RESPONDING: ___ USED: ___

VOLUNTEER RESPONDING: ___ USED: ___

APPLIANCES: NUMBER OF S.P. PUMPS USED --

PORT. PUMPS USED --

AERIAL APP. USED --

OTHER APP. USED --

IF FIRE/ SPECIAL SERVICE

METHOD(S) OF EXTINGUISHMENT / EQUIPMENT USED:

__' __' __' __' __'

IF PROPERTY FIRE

OCCUPANCY TYPE: ___ CONSTRUCTION TYPE: --

NO. OF FLOORS: __ FLOOR AREA OF DAMAGED UNIT: ____

FIXED INSTALLATION PERFORMANCE: _ NO. OF HEADS OPERATED: --

AUTO. DETECTOR PERFORMANCE: _

EQUIPMENT INVOLVED IN IGNITION: --*

HEAT SOURCE: --

MATERIAL IGNITED: --

EXTENT OF DAMAGE: _ % DAMAGE TO UNIT: ___

IF HAZARDOUS MATERIAL

TYPE OF MATERIAL: --

CHEMICAL NAME: TRADE NAME:

MANUFACTURERS NAME:

IF CASUALTIES

NUMBER OF FIRE SERVICE INJURIES: __ DEATH: __

CIVILIAN INJURIES: __ DEATH: __

IF EQUIPMENT INVOLVED

MANUFACTURER:

TRADE NAME:

APPENDIX P SUGGESTED CODING EXTENSIONS

APPENDIX P SOME EXTENSIONS TO THE CODING SCHEME

Some of the extensions to the coding scheme should be along the lines of the NFPA code, for example:

Fixed Installation Performance

1. Fixed installation (water) operated
2. Fixed installation (water) did not operate but should have.
3. Fixed installation (water) did not operate, fire too small.
4. Fixed installation (non water) operated.
5. Fixed installation (non water) did not operate, but should have.
6. Fixed installation (non water) did not operate, fire too small.
8. No fixed installation

Automatic Detector Performance

1. Detector present in room, operated.
2. Detector not present in room, operated.
3. Detector present in room, did not operate
4. Detector not present in room, did not operate
5. Detector present in room, fire too small to activate.
8. No detectors in building.

Other extensions to the code would have to be introduced where the NFPA code is inadequate for example

Equipment Used

Hazardous Conditions

1.1 Breathing Apparatus

1.2 Neutralisers

1.3 Delta suits

Salvage

2.1 Salvage sheets

2.2 Hand equipment (e.g. brooms)

2.3 Power vacuum cleaner

2.4 Ventilation fans

Rescue

3.1 Gas cutting gear

3.2 Pneumatic cutting gear

3.3 Electric cutting gear

3.4 Hydraulic rescue equipment

3.5 Lighting equipment

3.6 Lifting equipment (block and tackle, air bags etc)

3.7 Hand tools

3.8 Resuscitator